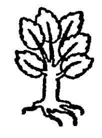
TESTI E DOCUMENTI PER LO STUDIO DELL'ANTICHITA'
LV

Francis Thomas Gignac

A GRAMMAR OF THE GREEK PAPYRI OF THE ROMAN AND BYZANTINE PERIODS



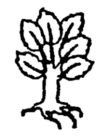
ISTITUTO EDITORIALE CISALPINO - LA GOLIARDICA
Milano

Francis Thomas Gignac

A GRAMMAR OF THE GREEK PAPYRI OF THE ROMAN AND BYZANTINE PERIODS

Volume I

Phonology



ISTITUTO EDITORIALE CISALPINO - LA GOLIARDICA
Milano

Centro Grafico Linate S. Donato (Milan – Italy)

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PREFACE

This is the first volume of a grammar of the non-literary Greek papyri from Roman and Byzantine Egypt. Volumes on morphology and syntax will follow.

These papyri, consisting of personal and business letters, receipts, orders, contracts, wills, petitions, census and tax returns, official communications, minutes of court proceedings, etc., constitute our richest source of knowledge of Koine Greek, and remain the only major collection of Greek documents lacking a comprehensive linguistic description. They provide evidence of the Greek language through eight centuries of transition from the morphologically complex structure of the classical and Hellenistic periods toward the predominantly syntactic language of Greece today. In reflecting Koine Greek spoken and written in Egypt, they also show bilingual interference phenomena outside the mainstream of development from ancient to Modern Greek.

This grammar traces the early stages of many features which mark the Modern Greek language and examines their causes. It keeps the living and changing language of the papyri in perspective in the historical development of Greek by comparing it throughout not only with the language of contemporaneous Koine documents and literature, but also with the earlier classical dialects and with later Byzantine and Modern Greek. It analyzes the patterns of bilingualism in the Greek of the papyri and shows the degree to which native language habits interfered in one locale with the common language used by diverse linguistic groups throughout the Mediterranean area.

The corpus of texts analyzed in this grammar is the total number of the documentary papyri and ostraca from Egypt from the beginning of the Roman period in 30 B.C. to the end of the papyri ca. A.D. 735. The evidence of the magical papyri and astrological texts, inscriptions, and mummy labels from Egypt, and the relatively few Roman and Byzantine papyri from outside Egypt, is included for comparison. Altogether this grammar is based upon an analysis of 15,052 papyri (including documents on parchment, skin, etc.), 7,698 ostraca, 2,619 minor documents and descriptions, 174 magical papyri and astrological texts, 5,687 inscriptions, and 1,054 mummy labels–a total of 32,284 documents.

All who have worked extensively with documentary papyri realize that the printed texts in the editions must often be considered provisional readings subject to later correction rather than definitive texts. Even after five volumes of the Berichtigungsliste, *many wrong readings undoubtedly remain; but the evidence on which this grammar is based is so extensive that corrections of individual readings used for illustration should not affect the general linguistic description. I would be very grateful, however,*

if scholars would communicate to me any wrong readings or false references, in order that lists of errata and corrigenda may keep this grammar up to date with the current state of papyrus texts.

This volume is a revision and expansion of my Oxford University thesis. I gratefully acknowledge my debt to those who helped me at that stage. Prof. L. R. Palmer suggested the non-literary papyri as a topic of research and supervised my work. The Rev. Dr. J. W. B. Barns introduced me to the study of papyrology. Prof. J. Vergote of Louvain gave many hours of his time to summarize for me his research in the phonology of Egyptian vowels and to approve, encourage, and guide my study of bilingualism in the papyri. Dr. R. B. Mitchell encouraged me in my work and advised me on the general approach from his background in the grammatical analysis of Old English. Mr. P. J. Parsons and Dr. A. C. Moorhouse accepted my thesis for the Degree of Doctor of Philosophy for the Board of the Faculty of Literae Humaniores and recommended it for publication. I am also very grateful for the interest and encouragement shown by my colleagues at Campion Hall, Oxford, especially the Rev. Drs. Timothy S. Healy, Edwin J. Cuffe, and the Rev. Timothy G. Page.

Since I returned from Oxford, Prof. H. C. Youtie has most generously made the resources of the papyrology rooms at the University of Michigan available to me whenever I was free from teaching commitments to continue work on this grammar. I am most grateful to him for his unfailing graciousness and wisdom, and his expert advice on many points. I am also grateful to my graduate assistants at Fordham University who aided me materially in the production of the grammar. Susan Boyd sorted and filed many slips and rendered other secretarial services. Maurya P. Horgan helped with the layout, typed the bulk of a preliminary draft, and prepared the map on pages 52-53. Barbara A. Cullom indexed the preliminary draft for reference checking.

I received a Faculty Research Grant from Fordham University and a grant from the Saint Robert Bellarmine Foundation of the Jesuits of Fordham, Inc., to assist me in the preparation of the manuscript for publication.

Finally, I am very grateful to Prof. I. Cazzaniga, who urged the acceptance of this grammar for publication by the Istituto Editoriale Cisalpino, and to the editor of the press for his patience and care in the printing of the work.

Francis Thomas Gignac

The Catholic University of America
Washington, February, 1975

BIBLIOGRAPHY AND ABBREVIATIONS

A. EDITIONS OF TEXTS

1. PAPYRI

Archiv	*Archiv für Papyrusforschung und verwandte Gebiete*, hg. U. Wilcken, F. Zucker, et al. Leipzig, etc., 1901-.
BGU	*Aegyptische Urkunden aus den Koeniglichen (Staatlichen) Museen zu Berlin. Griechische Urkunden.* i-v, vii, ix, xi, hg. W. Schubart, P. Viereck, F. Zucker, H. Maehler, et al. Berlin, 1895-.
CPJud.	*Corpus Papyrorum Judaicarum.* ii-iii, ed. V. A. Tcherikover, A. Fuks, M. Stern. Cambridge, Mass., 1960, 1964.
CPR	*Corpus Papyrorum Raineri Archiducis Austriae.* i. *Griechische Texte*, hg. C. Wessely. 1, *Rechtsurkunden*, mit L. Mitteis. Wien, 1895.
MChr.	*Grundzüge und Chrestomathie der Papyruskunde.* ii. *Juristischer Teil*, 2. *Chrestomathie*, hg. L. Mitteis. Leipzig & Berlin, 1912.
PAberd.	*Catalogue of Greek and Latin Papyri and Ostraca in the Possession of the University of Aberdeen*, ed. E. G. Turner. Aberdeen, 1939.
PAbinn.	*The Abinnaeus Archive: Papers of a Roman Officer in the Reign of Constantius II*, ed. H. I. Bell, V. Martin, E. G. Turner, D. van Berchem. Oxford, 1962.
PAchmim	"Les Papyrus grecs d'Achmîm à la Bibliothèque Nationale de Paris," par P. Collart. *BIFAO* 31, 33-111. Le Caire, 1931.
PAlex.	*Papyrus grecs du musée gréco-romain d'Alexandrie*, par A. Świderek, M. Vandoni. Travaux du centre d'archéologie méditerranéenne de l'Académie polonaise des sciences, tome 2. Warszawa, 1964.
PAlexGiss.	*Papyri Variae Alexandrinae et Gissenses*, par J. Schwartz. Papyrologica Bruxellensia 7. Bruxelles, 1969.
PAmh.	*The Amherst Papyri.* ii. *Classical Fragments and Documents of the Ptolemaic, Roman, and Byzantine Periods*, ed. B. P. Grenfell, A. S. Hunt. London, 1901.

PAmst. See *PGron.*

PAntin. *The Antinoopolis Papyri.* i-iii, ed. C. H. Roberts, J. W. B. Barns, H. Zilliacus. London, 1950-67.

PApoll. *Papyrus grecs d'Apollônos Anô,* ed. R. Rémondon. Documents de fouilles de l'Institut français d'archéologie orientale du Caire, tome 19. Le Caire, 1953.

PBaden *Veröffentlichungen aus den badischen Papyrus-Sammlungen.* ii, iv, vi: *Griechische Papyri (Urkunden, Briefe, etc.),* hg. F. Bilabel, G. A. Gerhard. Heidelberg, 1923-38.

PBas. *Papyrusurkunden der Öffentlichen Bibliothek der Universität zu Basel.* i. *Urkunden in griechischer Sprache,* hg. E. Rabel. Abh. der königlichen Gesellschaft der Wissenschaften zu Göttingen, Phil.-hist. Klasse, N.F., Bd. 16, No. 3. Berlin, 1917.

PBeattyPanop. *Papyri from Panopolis in the Chester Beatty Library Dublin,* ed. T. C. Skeat. Chester Beatty Monographs, No. 10. Dublin, 1964.

PBerlLeihg. *Berliner Leihgabe griechischer Papyri,* hg. vom griechischen Seminar der Universität Uppsala durch T. Kalén. Universitets Årsskrift. Uppsala, 1932.

PBerlZill. *Vierzehn Berliner griechische Papyri: Urkunden und Briefe,* hg. H. Zilliacus. Societas Scientiarum Fennica, Commentationes Humanarum Litterarum 11.4. Helsingfors, 1941.

PBon. *Papyri Bononienses* i, ed. O. Montevecchi. Pubblicazioni dell'Univ. Cattolica del Sacro Cruore, N.S. 42. Milano, 1953.

PBouriant *Les Papyrus Bouriant,* par P. Collart. Paris, 1926.

PBrem. *Die Bremer Papyri,* hg. U. Wilcken. Abh. der preussischen Akademie der Wissenschaften, 1936, Phil.-hist. Klasse Nr. 2. Berlin, 1936.

PCairGoodsp. *Greek Papyri from the Cairo Museum together with Papyri of Roman Egypt from American Collections,* ed. E. J. Goodspeed. The University of Chicago, The Decennial Publications 5. Chicago, 1902.

PCairIsidor. *The Archive of Aurelius Isidorus in the Egyptian Museum, Cairo, and the University of Michigan,* ed. A. E. R. Boak, H. C. Youtie. Ann Arbor, 1960.

PCairMasp. *Catalogue général des antiquités égyptiennes du Musée du Caire: Papyrus grecs d'époque byzantine,* ed. J. Maspero. 3 vols. Le Caire, 1911-16. (In references, 1 = 67001, etc.)

PCairPreis. *Griechische Urkunden des Ägyptischen Museums zu Kairo,* hg. F. Preisigke. Schriften der Wissenschaftlichen Gesellschaft in Strassburg, 8. Heft. Strassburg, 1911.

PChic.	*Papyri from Karanis*, ed. E. J. Goodspeed. The University of Chicago Studies in Classical Philology 3 (1902), 1-66. Reprinted in *SB* Beiheft 2 A.
PCol. 1 R	*Tax Lists and Transportation Receipts from Theadelphia*, ed. W. L. Westermann, C. W. Keyes. New York, 1932.
PCol. 1 V	*Tax Documents from Theadelphia: Papyri of the Second Century A.D.*, ed. J. Day, C. W. Keyes. New York, 1956.
PCol. 123	*Apokrimata: Decisions of Septimius Severus on Legal Matters*, ed. W. L. Westermann, A. A. Schiller. New York, 1954.
PCornell	*Greek Papyri in the Library of Cornell University*, ed. W. L. Westermann, C. J. Kraemer, Jr. New York, 1926.
PEdfou	"Les Papyrus et les ostraca grecs," ed. J. Manteuffel. *Fouilles franco-polonaises. Rapports: Tell Edfou 1937, 1938; 1939*, i, 141-91; ii, 137-65; iii, 331-72. Le Caire, 1937-50.
PErl.	*Die Papyri der Universitätsbibliothek Erlangen*, bearb. W. Schubart. Katalog der Handschriften der Universitätsbibliothek Erlangen, Neubearb. 3, 1. Leipzig, 1942.
PFay.	*Fayûm Towns and their Papyri*, by B. P. Grenfell, A. S. Hunt, D. G. Hogarth. London, 1900.
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PGen.	*Les Papyrus de Genève*, par J. Nicole. i. *Papyrus grecs: Actes et lettres*. Genève, 1896-1900.
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PGissBibl.	*Mitteilungen aus der Papyrussammlung der Giessener Universitätsbibliothek* i, iii, v, vi, bearb. H. Kling, H. Büttner, A. von Premerstein, G. Rosenberger. Schriften der hessischen Hochschulen, Universität Giessen. Giessen, 1924-39.
PGot.	*Papyrus grecs de la Bibliothèque Municipale de Gothembourg*, par H. Frisk. Göteborgs Högskolas Årsskrift 35 (1929 : 1). Göteborg, 1929.

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PGron.	*Papyri Groninganae: Griechische Papyri der Universitätsbibliothek zu Groningen nebst zwei Papyri der Universitätsbibliothek zu Amsterdam*, hg. A. G. Roos. Verhandelingen der koninklijke Akademie van Wetenschappen te Amsterdam, Afdeeling Letterkunde, Nieuwe Reeks, Deel 32, No. 4. Amsterdam, 1933.
PHamb.	*Griechische Papyrusurkunden der Hamburger Staats- und Universitäts-Bibliothek*. i, hg. P. M. Meyer. Leipzig & Berlin, 1911-24. ii, hg. vom Seminar für Klassische Philologie der Universität Hamburg, eingeleitet von B. Snell. Hamburg, 1954.
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PJand.	*Papyri Iandanae*, cum discipulis ed. C. Kalbfleisch. Fasc. i-iv, vi-viii. Leipzig, 1912-38.
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PNYU — *Greek Papyri in the Collection of New York University*. i. *Fourth Century Documents from Karanis*, ed. N. Lewis. New York University Department of Classics Monographs on Mediterranean Antiquity. Leiden, 1967.

POslo — *Papyri Osloenses*. Fasc. ii-iii, ed. S. Eitrem, L. Amundsen. Oslo, 1931, 1936.

POxy. — *The Oxyrhynchus Papyri*. i-xli, ed. B. P. Grenfell, A. S. Hunt, C. H. Roberts, E. G. Turner, et al. London, 1898-.

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PPrinc. — *Papyri in the Princeton University Collections*, ed. A. C. Johnson, H. B. van Hoesen, E. H. Kase, Jr., S. P. Goodrich. 3 vols. Baltimore-Princeton, 1931-42.

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PRossGeorg. — *Papyri russischer und georgischer Sammlungen*. ii-v, hg. G. Zereteli, O. Krüger, P. Jernstedt. Tiflis, 1929-35.

PRyl.	*Catalogue of the Greek Papyri in the John Rylands Library at Manchester*. ii, iv: *Documents of the Ptolemaic, Roman, and Byzantine Periods*, ed. J. de M. Johnson, V. Martin, A. S. Hunt, C. H. Roberts, E. G. Turner. Manchester & London, 1915-52.
PSAAthen.	*Papyri Societatis Archaeologicae Atheniensis*, ed. G. A. Petropulos. ΠΡΑΓΜΑΤΕΙΑΙ ΤΗΣ ΑΚΑΔΗΜΙΑΣ ΑΘΗΝΩΝ. ΤΟΜΟΣ 1′. Athens, 1939.
PSarap.	*Les Archives de Sarapion et de ses fils: une exploitation agricole aux environs d'Hermoupolis Magna (de 90 à 133 p.C.)*, ed. J. Schwartz. IFAO, Bibliothèque d'étude, tome 29. Le Caire, 1961.
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	126-400 = *Papyrus grecs de la Bibliothèque nationale et universitaire de Strasbourg*. iii-v, par P. Collomp et al. in *Bulletin de la Faculté des Lettres de Strasbourg*, 1935-68. Reprinted as *Papyrus grecs*, Nos. 126-68, par P. Collomp, Paris, 1948; Nos. 169-300, par J. Schwartz, Paris, 1963.
	(vi) 501-540, par J. Schwartz et al. *Bulletin de la Faculté des Lettres de Strasbourg* 48, 1970-71.
PTebt.	*The Tebtunis Papyri*. ii, ed. B. P. Grenfell, A. S. Hunt, E. J. Goodspeed. University of California Publications, Greco-Roman Archeology. London, 1907.
PThead.	*Papyrus de Théadelphie*, ed. P. Jouguet. Paris, 1911.
PVars.	*Papyri Varsovienses*, ed. G. Manteuffel et al. Universitas Varsoviensis Acta Facultatis Litterarum 1. Warszawa, 1935.
PVindobWorp	*Einige Wiener Papyri*, ed. K. A. Worp. Studia Amstelodamensia ad Epigraphicam, Ius Antiquum et Papyrologicam Pertinentia 1. Amsterdam, 1972.

PWürzb. *Mitteilungen aus der Würzburger Papyrussammlung*, hg. U. Wilcken. Abh. der preussischen Akademie der Wissenschaften, Phil.-hist. Klasse, Nr. 6, Jahrgang 1933. Berlin, 1934.

PYale *Yale Papyri in the Beinecke Rare Book and Manuscript Library.* i, ed. J. F. Oates, E. A. Samuel, C. B. Welles. American Studies in Papyrology, Vol. 2. New Haven & Toronto, 1967.

SB *Sammelbuch griechischer Urkunden aus Ägypten.* i-x & Beihefte 1-2, im Auftrag der Strassburger Wissenschaftlichen Gesellschaft, von F. Preisigke, F. Bilabel, E. Kiessling. Strassburg, etc., now Wiesbaden, 1913-.

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StudPal. xx, xxii *Catalogus Papyrorum Raineri.* Series Graeca. Leipzig, 1921-22.

WChr. *Grundzüge und Chrestomathie der Papyruskunde.* i. *Historischer Teil*, 2. *Chrestomathie*, hg. U. Wilcken. Leipzig & Berlin, 1912.

2. OSTRACA

OAberd. See *PAberd.*

OBrüss-Berl. *Ostraka aus Brüssel und Berlin*, hg. P. Viereck. Papyrusinstitut Heidelberg, Schrift 4. Berlin & Leipzig, 1922.

OEdfou See *PEdfou.*

OFay. See *PFay.*

OHeid. See *PHeid.*

OMeyer *Griechische Texte aus Ägypten*, hg. P. M. Meyer. ii. *Ostraka der Sammlung Deissmann* (see *PMeyer*, pp. 107ff.). Berlin, 1916.

OMich. *Greek Ostraca in the University of Michigan Collection*, by L. Amundsen, Part i, Texts. Ann Arbor, 1935. (Ostraca from Karanis [700-1111] appear in vols. vi & viii of the Michigan Papyri.)

OMichael. See *PMichael.*

OOslo *Ostraca Osloënsia: Greek Ostraca in Norwegian Collections*, ed. L. Amundsen. Avhandlinger utgitt av Det Norske Videnskaps-Akademi i Oslo, ii. Hist.-Filos. Klasse, 1933, No. 2. Oslo, 1933.

OPar.	See *PPar.*, pp. 427-33.
OROM	*Death and Taxes: Ostraka in the Royal Ontario Museum.* i, ed. A. E. Samuel, W. K. Hastings, A. K. Bowman, R. S. Bagnall. American Studies in Papyrology, vol. 10. Toronto, 1971.
OStrassb.	*Griechische und griechisch-demotische Ostraka der Universitäts- und Landesbibliothek zu Strassburg im Elsass*, hg. P. Viereck. Berlin. 1923.
OTait	*Greek Ostraca in the Bodleian Library at Oxford and Various Other Collections*, ed. J. G. Tait, C. Préaux, J. Bingen, M. Wittek. 3 vols. London, 1930-64.
OTaitAsh.	*OTait* i, pp. 63-81.
OTaitCamb.	*OTait* i, pp. 82-152.
OTaitPetr.	*OTait* i, pp. 153-73.
OTheb.	*Theban Ostraca.* Part iii, *Greek Texts*, ed. J. G. Milne. University of Toronto Studies. London, 1913.
OWilb-Brk.	*Les Ostraca grecs de la collection Charles-Edwin Wilbour au Musée de Brooklyn*, ed. C. Préaux. Brooklyn Institute of Arts & Sciences, Brooklyn Museum. New York, 1935.
WO	*Griechische Ostraka aus Ägypten und Nubien: Ein Beitrag zur antiken Wirtschaftsgeschichte.* ii, hg. U. Wilcken. Leipzig & Berlin, 1899. Mit Nachträgen von P. J. Sijpesteijn. Amsterdam, 1970.

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PGM	*Papyri Graecae Magicae.* i-iii, hg. K. Preisendanz et al. Leipzig & Berlin, 1928, 1931, 1941.

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C. OTHER ABBREVIATIONS AND SYMBOLS

1. AUTHORS AND WORKS

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A., Aeschylus, trag. vi/v B.C.
A.D., Apollonius Dyscolus, gram. ii A.D.
A.R., Apollonius Rhodius, epic. iii B.C.
Ach.Tat., Achilles Tatius, astron. iii A.D.?
Ael., Aelian, attic. ii/iii A.D.
Aeschin., Aeschines, orat. iv B.C.
Aët., Aëtius, med. vi A.D.
Agatharch., Agatharchides, geogr. ii B.C.
Alc., Alcaeus, lyr. vii/vi B.C.
Alciphr., Alciphro, epist. iv A.D.
Alcm., Alcman, lyr. vii B.C.
Alex., Alexander, rhet. ii A.D.
Alex.Aphr., Alexander Aphrodisiensis, phil. iii A.D.
Alex.Trall., Alexander Trallianus, med. vi A.D.
An.Ox., *Anecdota Graeca* e codd. MSS. Bibl. Oxon.
Anacr., Anacreon, lyr. vi B.C.
Anaxandr., Anaxandrides, com. iv B.C.
And., Andocides, orat. v/iv B.C.
Ant.Diog., Antonius Diogenes, erot. i/ii A.D.
Ant.Lib., Antoninus Liberalis, myth. ii A.D.?
Antiph., Antipho, orat. v B.C.
Antyll., Antyllus, med. ii A.D.
AP, *Anthologia Palatina*, Anthologia Graeca
Apollod., Apollodorus, myth. i A.D.?
Apollon.Cit., Apollonius Citiensis, med. i B.C.
App., Appianus, hist. ii A.D.
Ar., Aristophanes, com. v/iv B.C.
Arat., Aratus, epic. iv/iii B.C.
Archil., Archilochus, lyr. vii B.C.

Archim., Archimedes, geom. iii B.C.
Archipp., Archippus, com. v/iv B.C.
Archyt., Archytas, phil. iv B.C.
Aret., Aretaeus, med. ii A.D.
Arist., Aristotle, phil. iv B.C.
Aristarch., Aristarchus, gram. iii/ii B.C.
Aristid., Aristides, rhet. ii A.D.
Aristo, epigr. i B.C.?
Arr., Arrianus, hist. ii A.D.
Artem., Artemidorus Tarsensis, epigr. i B.C.
Ascl., Asclepiodotus, tact. i B.C.
Asclep., Asclepiades, epigr. iii B.C.
Ath., Athenaeus, gram. ii/iii A.D.

B., Bacchylides, lyr. v B.C.
Babr., Babrius, fab. ii A.D.
Byz.Chron., Byzantine Chroniclers

Call., Callimachus, epic. iii B.C.
Cat.Cod.Astr., *Catalogus Codicum Astrologorum*
Chionid., Chionides, com. v B.C.
Chrys., John Chrysostom, orat. iv/v A.D.
Clem.Alex., Clement of Alexandria, theol. ii/iii A.D.
Clitarch., Clitarchus, hist. iv B.C.
Com.Adesp., *Comica Adespota*
Cratin., Cratinus, com. v B.C.
Ctes., Ctesias, hist. v/iv B.C.
Cyrill.Alex., Cyril of Alexandria, theol. v A.D.

D., Demothenes, orat. iv B.C.
D.C., Dio Cassius, hist. ii/iii A.D.
D.Chr., Dio Chrysostom, soph. i/ii A.D.
D.H., Dionysius of Halicarnassus, hist. i B.C.
D.L., Diogenes Laertius, biogr. iii A.D.?
D.S., Diodorus Siculus, hist. i B.C.
Dam., Damascius, phil. v/vi A.D.
Damox., Damoxenus, com. iv/iii B.C.
Demetr., Demetrius, astrol. ap. Palchum
Democr., Democritus, phil. v B.C.
Dinol., Dinolochus, com. v B.C.
Diod., Diodorus, epigr. i B.C./i A.D.
Dsc., Dioscorides, med. i A.D.

E., Euripides, trag. v B.C.
EM, *Etymologicum Magnum*
Epich., Epicharmus, com. v B.C.
Epict., Epictetus, phil. i/ii A.D.

Erot., Erotianus, gram. i A.D.
Eub., Eubulus, com. iv B.C.
Eup., Eupolis, com. v B.C.
Euseb., Eusebius of Caesarea, eccl. iv A.D.
Eust., Eustathius, bishop xii A.D.

Gal., Galen, med. ii A.D.
Gem., Geminus, astron. i B.C.
Gp., *Geoponica*

h.Cer., *hymnus ad Cererem*
h.Merc., *hymnus ad Mercurium*
Hdn., Herodian, gram. ii A.D.
Hdt., Herodotus, hist. v B.C.
Hegesand., Hegesander, hist. ii B.C.
Hermipp., Hermippus, com. v B.C.
Hermog., Hermogenes, rhet. ii A.D.
Hero, mech. ii/i B.C.?
Herod. Att., Herodes Atticus, hist. ii A.D.
Hes., Hesiod, epic. vii B.C.
Him., Himerius, soph. iv A.D.
Hipparch., Hipparchus, phil. ap. Stobaeum
Hippol., Hippolytus, eccl. iii A.D.
Hld., Heliodorus, erot. iii A.D.
Hom., Homer, epic. viii/vii B.C.
Horap., Horapollo, gram. iv A.D.?
Hp., Hippocrates, med. v B.C.
Hsch., Hesychius, lexic. v A.D.?
Hymn.Is., *Hymnus ad Isim*
Hyp., Hyperides, orat. iv B.C.

Il., *Iliad*
Is., Isaeus, orat. iv B.C.
Isoc., Isocrates, orat. v/iv B.C.

J., Josephus, hist. i A.D.
Jul., Julian, emp. iv A.D.
Just., Justinian, emp. vi A.D.

Longus, erot. iii A.D.?
Luc., Lucian, soph. ii A.D.
LXX, Septuagint
Lyc., Lycophron, trag. iii B.C.
Lycurg., Lycurgus, orat. iv B.C.
Lys., Lysias, orat. v B.C.

Macho, com. iii B.C.
Man., Manetho, astrol. iv A.D.?

Max., Maximus, astrol. i B.C.?
Men., Menander, com. iv/iii B.C.
Meno, med. iv B.C.
Moer., Moeris, gram. ii A.D.
Mosch., Moschius, bucol. ii B.C.

Nic., Nicander, epic. ii B.C.
Nicoch., Nicochares, com. iv B.C.
Nicom., Nicomachus Gerasenus, mathem. ii A.D.
Nonn., Nonnus, epic. iv/v A.D.?
NT, New Testament

Od., *Odyssey*
Olymp., Olympiodorus, phil. vi A.D.
Onos., Onosander, tact. i A.D.
Opp., Oppianus Apamensis, epic. iii A.D.
Orib., Oribasius, med. iv A.D.
Orig., Origen, theol. iii A.D.
Orph., Orphica

Palch., Palchus, astrol. v/vi A.D.
Paus., Pausanias, trav. ii A.D.
Ph., Philo Judaeus, phil. i A.D.
Ph.Byz., Philo Byzantinus, paradoxogr. v A.D.?
Pherecr., Pherecrates, com. v B.C.
Philem., Philemo, com. iv/iii B.C.
Philippid., Philippides, com. iv/iii B.C.
Philostr., Philostratus, soph. ii/iii A.D.
Philostr.Jun., Philostratus Junior, soph. iii A.D.
Phld., Philodemus, phil. i B.C.
Phlp., Philoponus, Joannes, phil. vi A.D.
Phot., Photius, lexic. ix A.D.
Phryn., Phrynicus, attic. ii A.D.
Phylarch., Phylarchus, hist. iii A.D.
Pi., Pindar, lyr. v B.C.
Pl., Plato, phil. v/iv B.C.
Plb., Polybius, hist. ii B.C.
Plot., Plotinus, phil. iii A.D.
Plu., Plutarch, biogr. i/ii A.D.
Polem., Polemo, soph. i/ii A.D.
Poll., Pollux, gram. ii A.D.
Polyaen., Polyaenus, hist. ii A.D.
Porph., Porphyrus of Tyre, phil. iii A.D.
Procl., Proclus, phil. v A.D.
Procop., Procopus of Caesarea, hist. vi A.D.
Ps.Callisth., Pseudo-Callisthenes, hist. ii/iii A.D.

Ps.Phoc., Pseudo-Phocylidea, lyr. i A.D.?
Ptol., Ptolemaeus, math. ii A.D.
Pythag., Pythagoras, phil. vi/v B.C.

Q.S., Quintus Smyrnaeus, epic. iv A.D.?

Rh., Rhetores Graeci

S., Sophocles, trag. v B.C.
S.E., Sextus Empiricus, phil. ii A.D.
Sapph., Sappho, lyr. vii/vi B.C.
Sch., Scholia
Scyl., Scylax, geogr. iv B.C.?
Scymn., Scymnus, geogr. ii B.C.
Simon., Simonides, lyr. vi/v B.C.
Simplic., Simplicius, phil. vi A.D.
Sm., Symmachus, exeg. ii/iii A.D.
Sor., Soranus, med. ii A.D.
Stob., Stobaeus, Joannes, anth. v A.D.
Str., Strabo, geogr. i B.C./i A.D.
Suid., Suidas, lexic. x A.D.
Synes., Synesius of Cyrene, theol. iv/v A.D.

Th., Thucydides, hist. v B.C.
Them., Themistius, soph. iv A.D.
Theoc., Theocritus, poet. iii B.C.
Thgn., Theognis, eleg. vi B.C.
Thphr., Theophrastus, phil. iv/iii B.C.
Tz., Tzetzes, Joannes, gram. xii A.D.

Vett.Val., Vettius Valens, astrol. ii A.D.

X., Xenophon, hist. v/iv B.C.

2. GENERAL ABBREVIATIONS

A, Achmimic (Coptic) dialect
A_2, Sub-Achmimic (Coptic) dialect
abbrev., abbreviated
Abh., Abhandlung
Abschn., Abschnitt
Abt., Abteilung
acc., accusative
Ach., Achaean dialect
act., active
adj(s)., adjective(s)
adv(s)., adverb(s)
Aeol., Aeolic dialects
Anh., Anhang
Anm., Anmerkung
anth., anthology (writer)
aor., aorist
ap., apud (quoted in)
app., appendix

appar., apparently
approx., approximate(ly)
Arab., Arabian period
Arc., Arcadian dialect
Arg., Argive dialect
Argol., Argolic dialect
art., article
astrol., astrological (text/writer)
astron., astronomer
Att., Attic dialect
attic., atticist
Aufl., Auflage
augm., augment(ed)

B, Bohairic (Coptic) dialect
Bd(e)., Band/Bände
bearb., bearbeitet
beg., beginning
betw., between
biog., biographer
Boeot., Boeotian dialect
bucol., bucolic writer
Byz., Byzantine period

ca., circa
cent., century
cf., confer
class., classical
cod(d)., codex, codices
Com., Comedy, Comic writer
compar., comparative
compd., compound
compos., composition
conj., conjunction(s)
cons., consonant(s)
contr., contracted, contraction
Copt., Coptic
Corinth., Corinthian dialect
corr., correctly written
corresp., corresponding
Cret., Cretan dialect
Cypr., Cyprian dialect

dat., dative
dbtfl., doubtful(ly)
decl., declension, declined
def., definite
Delph., Delphian dialect
Dem., Demotic
demonstr., demonstrative
descr., description
diff., different
dimin., diminutive
diss., dissertation
dist., distinguish(ed)
doc., documentary
Dor., Doric dialects
dub.l., dubia lectio
duplic., duplicate

eccl., ecclesiastical writer
ed., edition, edited by
ed. pr., editio princeps
Eg., Egyptian
El., Elean dialect
eleg., elegist
elsewh., elsewhere
emp., emperor
Ep., Epic, in the Epic dialect
epic., epic poet
epigr., epigrammatist
epist., epistolographer
equiv., equivalent
erot., erotic writer
esp., especially
etym., etymologically
Eub., Euboean dialect
ex(x)., example(s)
exc., except
excl., exclusively
exeg., exegete

F, Fayumic (Coptic) dialect
f.l., falsa lectio
fab., fabulist
fasc., fascicle
fem., feminine
fin., sub finem
fn., footnote
fol., folio
foll., following
fr., from

frag., fragment
freq., frequent(ly)
fut., future

gen., genitive
geogr., geographer
geom., geometrician
Gr., Greek
gram., grammarian

Hell., Hellenistic
Herac., Heraclean dialect
Herc., Herculanean
heterocl., heteroclitic
hg., herausgegeben
hist., historian

IE, Indo-European
impf., imperfect
impt., imperative
in., initium, beginning
incl., including, included
indecl., indeclinably
indef., indefinite
indic., indicative
indiv., individual(ly)
infin., infinitive
infreq., infrequently
init., initial
inscr(r)., inscription(s)
interrog., interrogative
introd., introduction
Ion., Ionic dialects
irreg., irregular(ly)

l., lege
Lac., Laconian dialect
Lat., Latin
Lesb., Lesbian dialect
lexic., lexicographer
lit., literary, literature
Locr., Locrian dialect
Lyd., Lydian dialect
Lyr., in Lyric poetry, lyric poet

mag., magical (text)
Magn., Magnesia(n)
masc., masculine
mathem., mathematician
mech., mechanician
med., medical writer
metath., metathesis
MGr., Modern Greek
mid., middle
ms(s)., manuscript(s)
myth., mythographer

n(n)., note(s), number(s)
n. ad loc., nota ad locum
n.d., no date indicated
N.F., Neue Folge
N.S., New Series
neut., neuter
no., number
nom., nominative
Nr., number
NWGr., Northwest Greek dialects

O, Oxyrhynchite (Coptic) dialect
occ., occasional(ly)
om., omitted
opp., opposed to
opt., optative, optimus
orat., orator
orig., original(ly)
ostr., ostracon/ostraca

Pamph., Pamphylian dialect
pap(p)., papyrus/papyri
paradoxogr., paradoxographer
part., partly
pass., passive
Perg., Pergamum, Pergamene
perh., perhaps
pers., person(al)
pf., perfect
phil., philosopher
pl., plural
poet., poet, poetry, poetical
poss., possible, possibly

ppf., pluperfect
prepos., preposition
pres., present
prob., probably
pron., pronoun
ptc., participle
Ptol., Ptolemaic period

q.v., quod vide
quant., quantitative

R, Recto
redupl., reduplication
ref(f)., reference(s)
reflex., reflexive
reg., regular(ly)
rel., relative
rest., restored, restoration
rhet., rhetorician
Rhod., Rhodian dialect
Rom., Roman period

S, Sahidic (Coptic) dialect
s.v(v)., sub voce/vocibus
sg., singular
sigm., sigmatic
sim., similarly
soph., sophist
sts., sometimes
subj., subject, subjunctive
subst., substantive(ly)
superl., superlative
suppl., supplement
syll., syllable, syllabic
Syrac., Syracusan dialect

t.t., technical term
tact., tactician
temp., temporal
theol., theologian
Thess., Thessalian dialect
Trag., Tragedy, Tragic writer
trav., travel writer

unaugm., unaugmented
uncontr., uncontracted
usu., usually

v., vide
V, Verso
v.l(l)., varia lectio/variae lectiones
voc., vocative
vol(s)., volume(s)

w., with
WGr., West Greek dialects
wo., without

Xtn., Christian

Zus., Zusatz

3. REFERENCES TO PAPYRI AND OSTRACA

Papyri and ostraca are cited as follows.

1. The name of the edition. The abbreviations used are those commonly employed in papyrological works. They may be found in alphabetical order opposite the full references in the Bibliography. Re-edited documents are cited by the *editio princeps* when it is in one of the main papyrus collections (in conformity with the practice of the dictionaries), followed by a cross-reference to the best text, normally the most recent edition, e.g., *PGen.* 70 = *WChr.* 380. Superseded intervening editions are omitted, e.g., *PLond.* 417 = *PAbinn.* 32,

not *PLond.* 417 = *WChr.* 129 = *PAbinn.* 32. Only the (latest) *Sammelbuch* reference is given if the document was first published in a minor edition completely reprinted in *Sammelbuch*, e.g., just *SB* 9332, not *PLund.* iii, 1 = *SB* 8741 = *PSoknobr.* 12 = *SB* 9332. But no reference to *Sammelbuch* is given if the document was originally published in a book or monograph. Thus, only *PLeit.*, *PAlexGiss.*, and *PSarap.* are cited, although their texts were reprinted in *Sammelbuch*. Correspondences to reprints in *CPJud.* are not ordinarily given.

2. The number of the document within the edition. This is given in Arabic numerals. The volume number (in small Roman numerals) and page numbers are included only for editions in which the documents are not in consecutive numerical order, e.g., *Archiv*, *PLond.*

3. The number of the line or lines of the document in which the reference occurs. The line number is separated from the document number by a full point. Subsequent occurrences within the same document are separated by commas. Individual hands within a document are distinguished only when significant.

4. The date of the document. The date follows, enclosed within parentheses. The actual year is given when possible. Centuries referred to are all A.D. unless B.C. is specified. Parts of centuries estimated by editors in various forms (beg., end; in., fin., etc.) are standardized to *early*, *mid*, *late*.

Papyrus texts are quoted in a form which most closely reflects what was actually written on the document. Editorial additions or deletions are therefore normally omitted. But breathings, accents, capitals, punctuation, and iota subscripts are normally added. The following conventional editorial sigla are used.[1] Strokes below letters (e.g., α̲ β̲ γ̲) to indicate letters which are mutilated in the original but concerning which no serious doubt exists have been omitted. Line divisions are indicated when interesting or significant.

[ ] lacuna in the papyrus
⟦ ⟧ deletion in the original
< > omission in the original, i.e., addition by the editor
{ } superfluous letter(s) in the original, i.e., deletion by the editor
( ) resolution of a symbol or abbreviation
\ / insertion above the line in the original
α̣ β̣ γ̣ (dots underneath letters) letters doubtfully read
| line division

Irrelevant words or phrases omitted in citations are indicated by three dots on the line (...). These dots therefore do not represent letters lost or mutilated in the original except when enclosed in the square brackets [ ] indicating a lacuna.

[1] This is basically the Leiden system of transcription devised in 1931. See esp. Turner, *Greek Papyri*, pp. 179-80.

4. REFERENCES TO SECONDARY LITERATURE

Abbreviations used for frequently cited works (author's name with or without short title) are found opposite the full references in the Bibliography. References are normally to page number, but a section number (marked §) is used for works in which this mode of reference is more common and/or more helpful.

5. SYMBOLS

Phonemes are indicated by diagonal lines / /.

Morphemes are indicated by braces { }.

Phonetic symbols are indicated by square brackets [ ].

The phonetic symbols employed are those of the International Phonetic Association. The following ones are used.

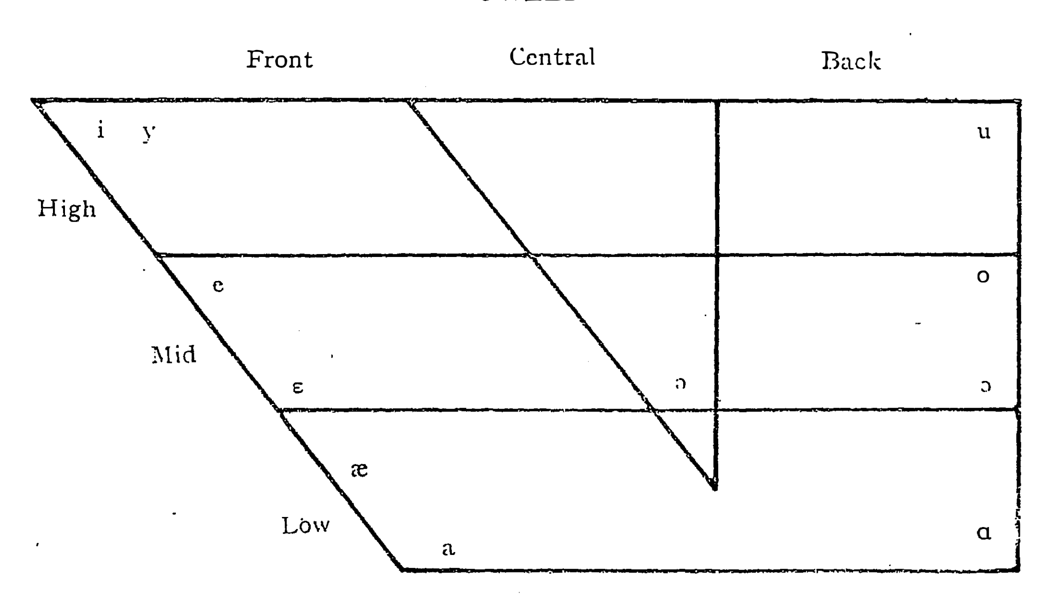
CONSONANTS

		Labial	Labiodental	Dental	Alveolar	Alveopalatal	Velar	Glottal
Stops	vl.	p		t			k	ʔ
	vd.	b		d			g	
Fricatives	vl.	Φ	f	θ	s	ʃ	x	h
	vd.	β	v	ð	z	ʒ	ɣ	
Resonants Lateral	vd.				l			
Nasal	vd.	m		n			ŋ	
Median	vd.	w			r	j		

vl. = voiceless; vd. = voiced

Aspirated stops are represented by the digraphs [ph th kh]
Palatalized stops are represented by the digraphs [tj kj]
Labialized consonants are represented by the digraphs [kw gw]
Affricates are represented by the digraphs [tʃ dʒ]

VOWELS



Primary = rounded back
Secondary = rounded front

GENERAL INTRODUCTION

A. PREVIOUS STUDIES

Scholars have long recognized the value of the non-literary papyri from Egypt for the study of the post-classical Greek language. Grammarians began to cite the papyri soon after they appeared in quantity towards the end of the last century. Already in 1892, G. N. Hatzidakis was able to include references to the papyri in his *Einleitung in die neugriechische Grammatik*.[1] In 1897, A. N. Jannaris used the papyri extensively in showing lines of linguistic development in his historical Greek grammar. In 1898, K. Dieterich based his history of the Greek language from the Hellenistic period to the tenth century A.D. on the papyri and inscriptions, and in 1901, A. Thumb analyzed the language of the papyri further in *Die griechische Sprache im Zeitalter des Hellenismus*. A. Deissmann popularized the use of papyri and inscriptions as a source of illustration of Biblical Greek in his *Bibelstudien* and *Neue Bibelstudien*,[2] and later in his *Licht vom Osten*. His example was followed by J. H. Moulton and G. Milligan in their vocabulary of the Greek Testament. Similarly, Moulton, F. Blass, A. T. Robertson, and L. Rademacher incorporated many parallels from the papyri in their scientific grammars of the Greek New Testament, as did R. Helbing and H. St J. Thackeray in their grammars of the Septuagint.

The need for a systematic grammatical study of the papyri in themselves was felt as soon as a sufficient number and variety had been edited. In 1897, S. Witkowski published prolegomena to a projected grammar of the papyri and a list of corrections of existing editions. F. Völker published in 1900 a study of the use of the accusative case, with appendices on final -ν and -ς, followed in 1903 by the first and only part of his projected syntax of the papyri, a study of the article. Moulton published a series of grammatical notes from the papyri in 1901 and again in 1904. At this time, E. Mayser was working on his monumental grammar of the papyri, ostraca, and inscriptions of the Ptolemaic period. The first edition was completed in 1934.

While Mayser was compiling his comprehensive grammar of the Ptolemaic papyri, other scholars continued to write dissertations on individual points in both the Ptolemaic and post-Ptolemaic papyri. W. Kuhring in 1906, followed by C. Rossberg in 1909, studied the use of prepositions. K. Harsing published in 1910 a short but complete analysis of the optative mood, which R. C. Horn expanded in 1926 in his study of the subjunctive and optative. The Latin elements

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[1] Full references to these works may be found in the Bibliography, beginning on p. 14.

[2] These two works, published in Marburg in 1895 and 1897 respectively, were translated by Alexander Grieve and published together as *Bible Studies* (Edinburgh, 1901).

in the Greek of the papyri were the particular study of K. Wessely and B. Meinersmann.[1]

A. H. Salonius began a study of selected topics in the syntax and vocabulary of the private letters among the papyri of both the Ptolemaic and Roman periods, but was able to finish for publication in 1927 only an introductory part on the sources. In this work he made the valuable contribution of demonstrating the fallacy in the assumption that the more vulgar a piece of writing is, the nearer it approaches the actual spoken language. In 1932, H. Ljungvik published incisive studies of specific points of syntax in his *Beiträge zur Syntax der spätgriechischen Volkssprache.*

As more and more documents were edited, compilers of historical and New Testament Greek grammars continued to use the earlier studies supplemented by their own private observations, but were hampered by the lack of a comprehensive and up-to-date study of the language of this period. In the late 1930's, two independent attempts to produce a grammar of the papyri of the Roman and Byzantine periods paved the way for further studies. The first attempt resulted in a series of brilliant critical notes published in 1938 (followed by another set in 1957) by S. G. Kapsomenakis.[2] While he hoped that he would later have the leisure and means to continue Mayser's grammar for the post-Ptolemaic period, he found that the unsatisfactory condition of the editions of papyrus texts made a systematic grammatical analysis of the vast amount of material very difficult. Instead, he elected to treat a number of textual and semantic questions in the papyri as preparation for a future grammar.

At the same time that Kapsomenakis was conducting his research, L. R. Palmer was also working on a grammar of the post-Ptolemaic papyri. But his study was interrupted by the war, and subsequent duties did not allow him to complete his projected grammar. In 1946 he published the completed part, a treatment of the suffixes in word formation. His main contribution was a more precise distinction between orthographic variations and changes in form.

The preliminary studies of Salonius, Kapsomenakis, and Palmer have highlighted the principles to be employed in assessing the linguistic data offered by the papyrus texts. Unfortunately, none of these scholars was able to see his work through to completion. A grammar of the papyri of the Roman and Byzantine periods, in the words of H. C. Youtie, "remains a chief desideratum of papyrology to this day."[3]

The language reflected in the papyri is a living and changing language, part of the Koine Greek which links the welter of dialects of the classical period with Modern Greek. I have therefore compared it throughout this grammar not only with classical and Modern Greek but also with Koine Greek elsewhere in the Mediterranean world by citing parallel linguistic phenomena from monumental

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[1] These studies have been brought up to date and supplanted by R. Cavenaile, "Influence latine," and S. Daris, *Lessico.*

[2] His name is actually Kapsomenos, as it appears in many bibliographical references and in his other articles.

[3] *Textual Criticism,* 49.

and documentary evidence found in the grammars of inscriptions by Meisterhans-Schwyzer (Attic), Schweizer (Pergamene), Nachmanson (Magnesian), Hauser (Lycian), and Rüsch (Delphic). I have also compared it with the language of the Septuagint and of the New Testament, as well as with the language of some Koine authors. For the latter, I have limited myself to the data contained in Crönert, *Memoria Graeca Herculanensis*, and in Schmid, *Atticismus*. In addition, I have included references to the language of the Byzantine Chronicles as described in Psaltes' grammar. In this way, the language of the papyri can be seen in the perspective of the history of Greek as a whole.

It has become traditional to interpret the grammatical phenomena of the papyri in light of later developments in medieval and Modern Greek. This was the approach of Hatzidakis, Jannaris, Dieterich, Thumb, and more recently, Kapsomenakis and Palmer. An analysis of the grammar of the Greek of the papyri of the Roman and Byzantine periods confirms their view that this Greek can in great part be explained as a transitional stage between classical and Modern Greek.

In phonology, the Greek of the early Roman period stands closer to Modern Greek than to classical Attic. The original diphthongs represented by ει, αι, and οι have been identified with the simple vowels /i/, /ε/, and /y/ represented by ι, ε, and υ respectively. Quantitative distinction has been lost, so that the symbols for formerly long vowels and diphthongs interchange with those for short vowels. This in turn reflects a change in the nature of the accent from pitch to stress. Contraction of contiguous similar vowels is widespread while vowels in other positions are frequently lost. There is some evidence for the shift of the classical voiced stops represented by β, γ, and δ to fricatives. Final nasal is frequently dropped in pronunciation. The consonant cluster represented by ζ has been reduced to a simple sibilant /z/. Initial aspiration is frequently dropped, and single and double consonants are no longer distinguished.

In morphology, the language of the Roman and Byzantine papyri is changing from the complex inflectional system of the classical period to the simpler, regularized system of Modern Greek. The dual has disappeared except for sporadic remnants. There is much analogical levelling within each declension and among the various declensional types. Nouns of the first declension in -ρᾰ tend to form their genitive singular in -ρης, leading to the extension of one or the other vowel throughout the paradigm in Modern Greek. Masculine nouns in -ης and -ας sometimes replace the borrowed genitive -ου by the stem vowel -η or -α. Certain types of masculine and neuter nouns of the second declension in -ιος or -ιον drop the ο from the nominative and accusative singular to form a new declensional type reflected in the Modern Greek -ι(ν), -ιοῦ {-i(n), -ju}. The Attic second declension is nearly extinct. Some contract nouns appear in open forms or show heteroclitic forms of the third declension. Consonant stem nouns of the third declension frequently form their accusative singular in -ν on the analogy of vowel stem nouns of all declensions, leading to the eventual transfer of nouns of the third declension except neuters in -μα and some in -ος to the first or second declension. The nominative plural is often used for the

accusative, contributing to the adoption of this ending -ες as the nominative-accusative plural of all masculine and feminine nouns except *o*-stems in Modern Greek.

More adjectives of the first and second declensions form a distinct feminine than in classical Greek. Comparison of adjectives is becoming more regular by the extension of the -τερος, -τατος formations. Anticipations of Modern Greek forms are found in the first and second personal pronouns and in several numerals, while many compound cardinal and ordinal numbers and fractions show phonetic and morphological alterations, some consequent upon a transposition in word order.

Syllabic and temporal augment are often omitted or misplaced, leading to the partial loss of augment and complete loss of reduplication in Modern Greek. Stem formation tends to be regularized by the levelling of vocalic or consonantal variations, and especially by the frequent replacement of contract futures and root aorists by sigmatic formations. Periphrastic formations are found in several tenses. Aorist and future passive forms become more popular in deponent and other intransitive verbs, while some active forms replace classical middle forms, especially in the future of active verbs. Endings are frequently confused, especially those of the first and second aorist, perfect, and imperfect active, and analogical formations are found in the different moods of the individual tenses, leading to the loss of the future and perfect and the identification of the endings of the imperfect and aorist active in Modern Greek, along with the loss of the infinitive and optative and a severe reduction in forms of the imperative and participle. There is also some identification of contract classes. The transfer of athematic -μι verbs to the thematic -ω conjugation is well advanced.

In syntax, the Attic construction is often given up. The indefinite article is beginning to be represented by εἷς. The frequent indiscriminant use of the pronoun αὐτός has led to its use as the ordinary third personal pronoun in the nominative as well as in the oblique cases. The pronoun ἕτερος is sometimes replaced by ἄλλος. There is considerable fluctuation in the use of the cases. Many of the functions of the dative have been taken over by the genitive and accusative, leading to the elimination of the dative in Modern Greek, except in a few stereotyped expressions. The syntactic signals of the individual cases have been assumed by prepositions so that, for instance, the partitive genitive is supplemented by ἀπό or ἐκ, as is the genitive of material. Likewise, ἐκ introduces the genitive of price and διά a genitive of the cause. The accusative of extent of time is often introduced by ἐπί or εἰς. Similarly, διά with the genitive can substitute for the dative of means and μετά with the genitive for the dative of the instrument. Individual prepositions are confused so that διά can stand for περί, εἰς for ἐν, ἀπό for ὑπό and ἐκ, and ἐπάνω for ἐπί.

The middle voice has begun to lose its force. The indirect middle is often accompanied by a reflexive pronoun. The subjunctive is the normal mood in purpose, temporal, and general relative clauses. The optative in Roman times is limited almost exclusively to wish formulae. Sentence structure reflects

coordination rather than subordination, and asyndetic parataxis is very common.

These are the main lines of historical development seen from the viewpoint of Modern Greek. But anomalies occur in the language of the papyri, especially in phonology, which do not fit into the general picture of the development of the Greek language and have no explanation in historical Greek grammar. For instance, beside the limited evidence for the shift of the voiced stops /b g d/ represented by β, γ, δ to fricatives, as in Modern Greek, there is abundant evidence throughout the Roman and Byzantine periods that these sounds were still voiced stops, for γ and δ interchange very frequently, and β occasionally, with the symbols for the corresponding voiceless stops κ, τ, and π respectively. Similar evidence indicates that the aspirated stops represented by χ, ϑ, φ are often confused with their corresponding voiceless stops. This confusion of voiced and aspirated stops with voiceless stops appears foreign to Greek. For although both the voiced and aspirated stops shifted to fricatives in Modern Greek, they never merged with those of another order, but have remained distinct to the present day. The identification of these stops in the speech of many writers of the papyri occurs outside the mainstream of development of the Greek language.

Other anomalies in the phonology of the papyri also appear foreign to Greek. One is the occasional interchange of σ and ζ, not only before voiced consonants as observed elsewhere in Greek, but in other positions as well. A second is the confusion of the liquids represented by λ and ρ, which is attested elsewhere in Greek but nowhere as frequently as in the papyri from Egypt. Another is the interchange of η not only with ι and ει, suggesting that η may already have been pronounced [i], but also with ε. A further anomaly is the frequent interchange of α with ε or ο, mainly in unaccented syllables, but occasionally in accented syllables as well.

These anomalies cannot be explained satisfactorily within Greek itself. The evidence of the papyri of the Roman and Byzantine periods for the pronunciation of the various sounds is so discrepant that examples can be found to support almost any theory about the pronunciation of Greek at this time. This situation could lead to skepticism about the value of orthographic variations for determining the pronunciation of a dead language unless the conflicting evidence can be reconciled by distinguishing various causes simultaneously at work.

B. BILINGUAL INTERFERENCE

Given the localization of the Greek of the papyri in Egypt and the history of contact between the Greek and Egyptian elements of the population, it is reasonable to seek an explanation of the apparently non-Greek elements of the language in terms of interference from the native language habits of the Egyptians. An analysis of the phonemic structure of Coptic (the language of late Roman and Byzantine Egypt written in characters adopted primarily from Greek) reveals at once that the most striking anomalies in the language of the papyri have their simplest and most adequate explanation through a hypothesis of bilingual interference. There was no phonemic distinction between voiced and voiceless stops in any dialect of Coptic. Aspirated stops were phonemic only in the Bohairic dialect of the Delta, from which area relatively few papyri come. There was no phonemic distinction between voiced and voiceless sibilants, nor between liquids in at least the Fayumic dialect. The letter ⲏ represented at least two different sounds, and in no dialect of Coptic were there more than two phonemes corresponding to the three Greek phonemes represented by α, ε, and ο.[1]

The possibility of bilingual interference in the Greek of the papyri has long been recognized,[2] but it has not usually been invoked to explain more than isolated phenomena.[3] The above anomalies in phonology are obvious instances of Egyptian interference in the Greek of the papyri. Interference in morphology is not widespread because the inflectional systems of Greek and Coptic are not at all parallel, but there are many phenomena in the syntax of the documentary papyri which have no clear connection with features of classical or Modern Greek and for which precise parallels can be found in Coptic, such as the further specification of a relative by a resumptive personal pronoun.

Not all the anomalies in the language of the papyri can be so directly explained through bilingual interference. But there is a danger of failing to rec-

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[1] For the pronunciation of the Egyptian consonants, see Vergote, *Phonétique*, which is a synthesis and reinterpretation of Worrell, *Coptic Sounds*, and Czermak, *Die Laute der ägyptischen Sprache*. For the pronunciation of the vowels, see Sethe, "Die Vokalisation des Aegyptischen," A. Śmieszek, "Some Hypotheses," T. O. Lambdin, "The Bivalence of Coptic Eta," E. E. Knudsen, "Saidic Coptic Vowel Phonemes," and J. Vergote, *Grammaire copte*.

[2] E.g., by Hatzidakis, *Einl.*, 17; Schmid, rev. Winer-Schmiedel, 31-32; Thumb, *Hell.*, 102-61; W. Schubart, *Einführung in die Papyruskunde* (Berlin, 1918), 187, 191; Lefort, rev. Abel, 152-60; A. Calderini, *Manuale di papirologia antica, greca e romana* (Milano, 1938), 106-7; Vergote, "Grec biblique," coll. 1354-60; Peremans-Vergote, *Papyrologisch Handboek*, 121-5.

[3] As by Mayser, e.g., i, 58; cf. p. 4, fn.

ognize the scope of bilingual interference by making an *a priori* judgment either about the nature of the language in question by excluding a large number of documents from consideration on the grounds that they are bad Greek,[1] or about the nature of bilingualism by implying that any document containing evidence of interference was written by an Egyptian and that his language had no effect on the Greek language as a whole in that time and place.[2] The linguistic data must be analyzed in their entirety to determine the extent to which bilingualism permeated the Greek of the papyri. Potential areas of interference can be delineated by contrasting the Greek and Egyptian language systems.[3] This will avoid ascribing anomalies to bilingual interference without demonstrable cause or overlooking interference phenomena which reflect tendencies inherent in the Greek language itself but which are more adequately explained through bilingual interference because they are disproportionately frequent or further developed in Egypt than elsewhere, such as the advanced itacism in the papyri, particularly the widespread confusion of η and υ at an early date.

Bilingual interference is confirmed as an operative factor in the Greek of the papyri by the fact that the most obvious instances of interference occur in documents which can be shown on external evidence to be written by Egyptians. A group of documents replete with the most striking interference phenomena, including the confusion of voiced and voiceless stops and of liquids, is *PRyl.* 160-160d; these are bilingual Demotic-Greek contracts from Soknopaiou Nesos in the northern Fayum. Others are *BGU* 713, 854, 912. Several of the Michigan contracts from first-century Tebtunis (e.g., *PMich.* 249, 250, 253, 308, 342, 347) are in part Demotic, and almost all are notarial documents drawn up in the village record office. The social milieu reflected in these and many other documents showing interference phenomena is emphatically Egyptian, indicating that there was a substantial number of bilingual speakers among the writers of the papyri.

Bilingualism in the papyri, however, cannot be limited to direct interference in the speech and writing of actual bilinguals. In typical bilingual situations lasting over a long period, widespread interference phenomena tend to pervade a linguistic community to such an extent that they become established in the language of that community and are eventually found in the speech and writing of monolingual members who have no direct contact with the interfering language. In Egypt, there is evidence already in the early Ptolemaic period of extensive bilingualism, as Egyptians began to appear in Greek society, hold positions of some authority, and adopt Greek names and language.[4] For the

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1 As did Schubart, 187-91, and Salonius, 4.

2 As did Schubart, 313.

3 See especially U. Weinreich, *Languages in Contact*. Publications of the Linguistic Circle of New York (New York, 1953). Contrastive phonemic inventories may be found below in the summaries of consonants and vowels, pp. 178-9 and 330-3 respectively.

4 Bell, *Egypt*, 37. See further Peremans, "Over Tweetaligheid in Ptolemaeisch Egypte," *AC* 4 (1935), 403-17, and his later article on the same subject, "Über die Zweisprachigkeit im Ptol. Ägypten," *Festschrift Oertel*, 49-60.

Roman and Byzantine periods, specialized studies have demonstrated that names and occupations provide some criteria for judging the racial, cultural, and linguistic milieu from which many of the documents come.[1] But it is impossible to determine in most instances whether individual writers of the papyri showing interference phenomena spoke Egyptian as their primary language or whether they were monolingual speakers who acquired an Egyptian accent and Egyptian idioms through residual interference in the language of their community.

Although most unambiguous interference phenomena occur in documents which evidently come from the Egyptian element of the population, they are also found in documents which were probably not written by Egyptians, e.g., the letters in *PFay.* 110-20. Of all the papyri whose spelling or grammar deviates sufficiently from the traditional norm to reveal the writer's speech patterns, more than one in five shows some evidence–and one in ten unambiguous evidence–of Egyptian interference. All types of documents show evidence of bilingual interference. Private letters, receipts, orders, and petitions, written by people with Greek or Egyptian names, by private individuals and officials of various levels, show interference phenomena in all domains of grammar. Contracts, private and public, bilingual or composed entirely in Greek, are particularly rich sources for phonological interference.

The regional distribution of bilingualism in Egypt reflects the spread of Hellenic culture. Interference phenomena are most common in Soknopaiou Nesos during the first and second centuries, but also occur very frequently in contemporary documents from Tebtunis and other villages in the Fayum, as well as in various towns and villages up-river. But as a general rule, even allowing for the uneven distribution of papyrus finds, interference phenomena are less widespread farther south, including Hermopolis and Oxyrhynchus, in the early Roman period than in late Roman and Byzantine times, when bilingualism is at least as much in evidence in the Theban region as in the Fayum. In the earlier centuries, more evidence of bilingual interference comes from documents written in villages than in the towns and nome capitals, but in later times there is no such disproportion.

The map of Egypt on pp. 52-53 lists the main papyrus finds. An analysis of bilingual interference in the papyri requires that Egyptian dialect areas be distinguished. The distribution of the Coptic dialects ca. the fourth century A.D. is indicated on the map.[2]

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[1] See especially Holm, *Griechisch-ägyptische Namenstudien*, who refers for occupations primarily to Oertel, *Die Liturgie* (Leipzig, 1917), which has been brought up to date by N. Lewis in *Inventory of Compulsory Services* (1968).

[2] For the distribution of the Coptic dialects, I have followed Vergote, "Les dialectes." His map appears on p. 242.

C. THE SOURCES

This grammar is based upon all the non-literary papyri and ostraca from Roman and Byzantine Egypt. Ostraca are treated on the same level as papyri because identical linguistic phenomena occur on ostraca as in receipts, orders, etc., among the papyri. But magical papyri and inscriptions, including mummy labels, are cited only for purposes of comparison. Literary pieces like the writings of the poet of Aphrodito (*PCairMasp.* 55 V, 97 V, etc.) and all metrical tombstone and other inscriptions are excluded from consideration.

Documents are cited as described on pp. 34-35. Besides the identification by edition and number, the only other reference I ordinarily give is the date of writing, exact to the year when possible, so that the evolution of the language can be established within as precise a chronology as the documents allow. Neither the place of composition nor the type of the document is noted except when significant. Most grammatical phenomena occur in documents from all areas of Egypt. When phenomena are limited to one locale, or can be explained principally in terms of one Coptic dialect, as the interchange of λ and ρ in the Fayum, I indicate the place of composition (which is not necessarily the provenance) of the documents from which the evidence comes. Similarly, all types of documents among the papyri have provided grammatical evidence. Some types of documents, notably private correspondence, have furnished the most evidence for morphological and syntactic developments. Other types, including receipts, orders, contracts, applications, declarations, and returns, have proved equally fruitful as sources for phonological developments and bilingual interference phenomena. I therefore indicate the type only when the phenomenon is limited to certain types of documents.

In general, the less artificiality there is in the style of composition, the more significant the document is for illustrating the living Greek language in Egypt in the Roman and Byzantine periods. The most revealing documents are those whose variations from the traditional norm of orthography reflect the spoken word. But very poorly written documents have to be used extremely cautiously for linguistic analysis because they often show truncated forms, unpronounceable words, and tortuous syntax. I present criteria to evaluate phenomena in such documents in the introduction to each part. I indicate the general level of accuracy of orthography and grammar in a document only when significant to show that the particular spelling variation or form deserves special consideration or that it must be partially discounted because of the general irregularity of the document.

Because of the vastness of the material, it is neither feasible nor desirable

to give extensive references for each grammatical item. Even if it were possible to give every example in the papyri of every grammatical phenomenon, i.e., if all papyrus texts were in machine-readable format for analysis by computer, the resultant data would fill over 100 volumes. I have therefore included only those phenomena which indicate a change from the classical Greek norm and have tried to provide representative examples from the papyri. If a phenomenon is found throughout Roman and Byzantine times, I cite examples from different centuries. If the phenomenon begins during the period covered by the grammar, I give the earliest occurrences. The order of examples in each group is chronological unless a more obvious order (e.g., by forms or tenses) is followed for a particular reason.

Isolated errors do not constitute the basis for a grammar. A form which occurs *hapax* is so designated and included only if it fits in with the general development of the Greek language or can be explained through bilingual interference. In the rare instances when I can cite all the examples of an orthographic variation or grammatical form, I clearly indicate this. In all other instances, I indicate the frequency of occurrence of a phenomenon by terms which are necessarily approximate, because tabulation of statistics proved impossible in most instances and significant in others only to show how frequent one phenomenon was in comparison with others found in documents from the same time and place. The meaning and approximate scope of the terms used are as follows:

regularly (not an indication of frequency) = in conformity with classical practice

normally = virtually exclusively

usually = in the majority of occurrences

very frequently = in very many instances (over 200 examples)

frequently = in many instances (101-200 examples)

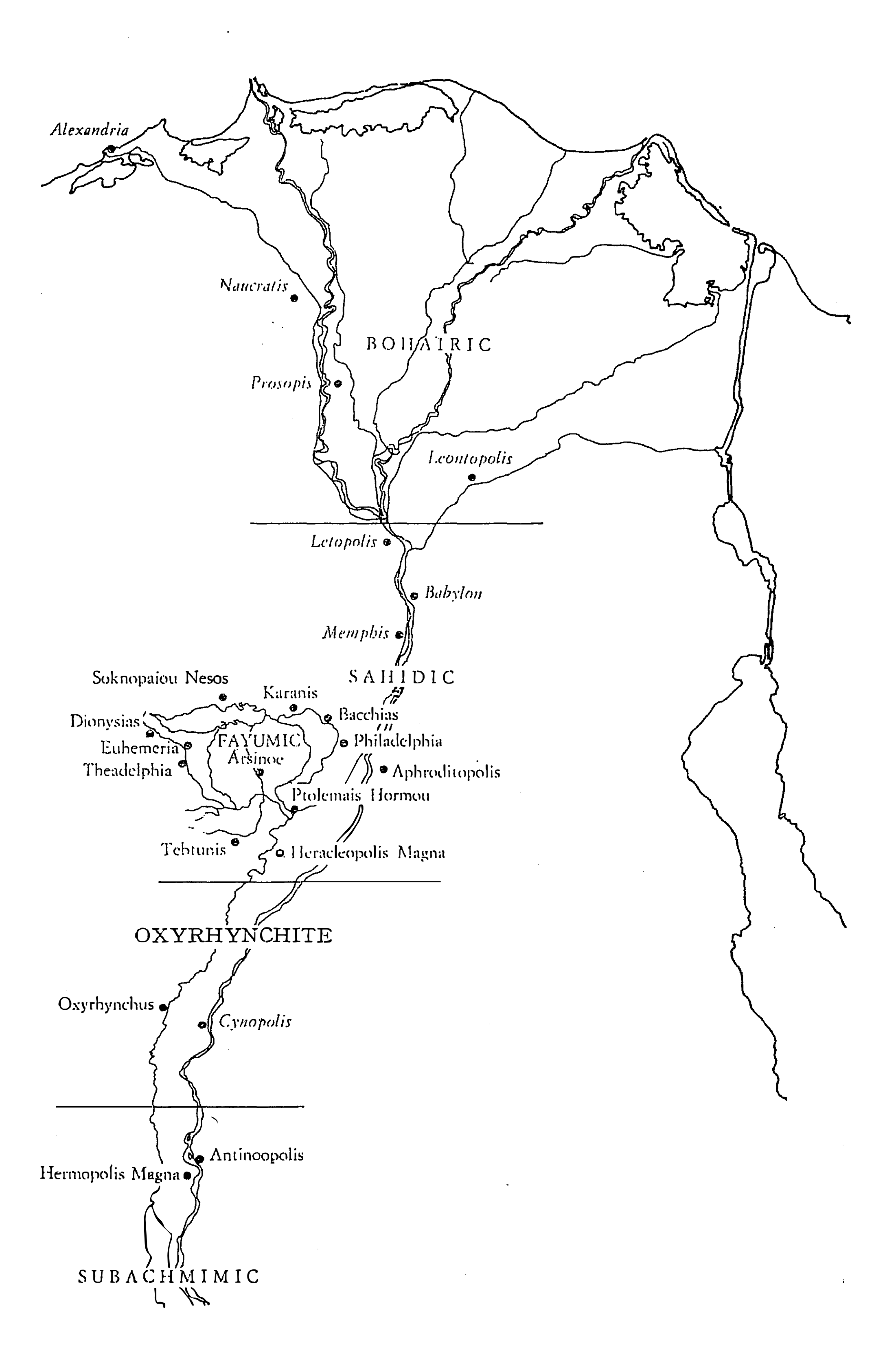
occasionally = often (26-100 examples)

sometimes = 11-25 examples

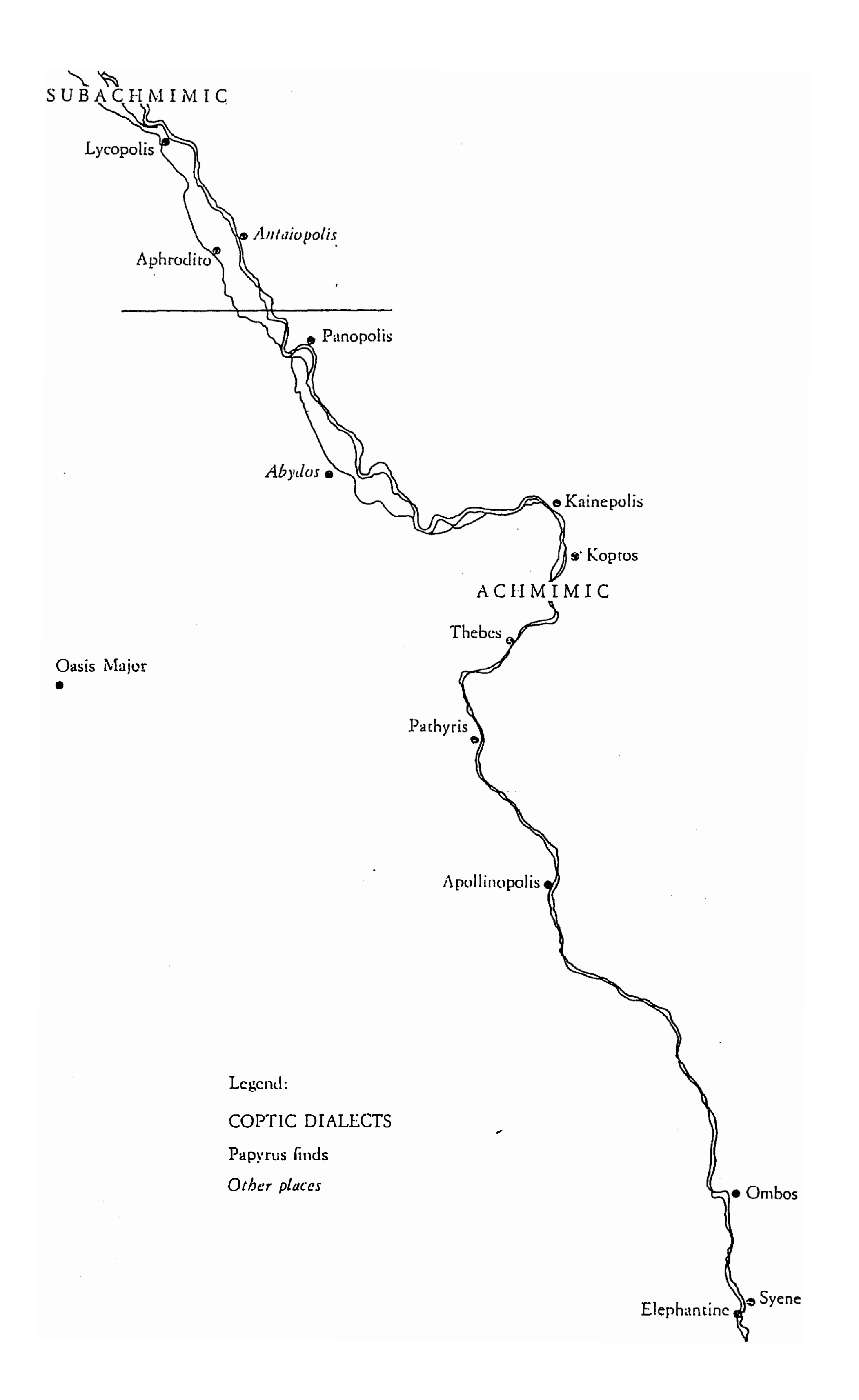
rarely = 6-10 examples

sporadically = 1-5 examples

DISTRIBUTION OF COPTIC DIALECTS IN RELATION TO MAIN PAPYRUS FINDS



Alexandria
Naucratis
BOHAIRIC
Prosopis
Leontopolis
Letopolis
Babylon
Memphis
SAHIDIC
Soknopaiou Nesos
Karanis
Dionysias
Bacchias
Euhemeria
FAYUMIC
Philadelphia
Arsinoe
Theadelphia
Aphroditopolis
Ptolemais Hormou
Tebtunis
Heracleopolis Magna
OXYRHYNCHITE
Oxyrhynchus
Cynopolis
Antinoopolis
Hermopolis Magna
SUBACHMIMIC


SUBACHMIMIC
Lycopolis
Antaiopolis
Aphrodito
Panopolis
Abydos
Kainepolis
Koptos
ACHMIMIC
Thebes
Oasis Major
Pathyris
Apollinopolis
Legend:
COPTIC DIALECTS
Papyrus finds
Other places
Ombos
Syene
Elephantine

PART ONE

PHONOLOGY

INTRODUCTION

In this part, the spelling variations found in the papyri of the Roman and Byzantine periods are analyzed to determine as accurately as possible how Greek was actually pronounced by the writers of the papyri. This analysis shows what phonological developments have taken place within the Greek language and to what degree the speech habits of non-native Greek speakers have introduced a foreign accent. It provides a necessary foundation for morphology by establishing which spelling variations reflect changes in form and which are merely orthographic without any correspondence in actual speech.

The validity of orthographic variations for determining the pronunciation of a dead language is based upon the observation that symbols are not generally confused in writing unless the sounds they represent have become identified in speech. If certain letters or groups of letters interchange only rarely and irregularly, there might be another explanation. But when they are confused frequently, so that a certain letter or group of letters stands for another and vice versa in document after document, this in itself establishes a strong presumption that such a departure from a traditional norm of orthography has a meaning, and that it expresses some reality in the speech of the writers concerned. Indiscriminate confusion of two or more symbols must indicate a virtual identity of the sounds which they represent.

This observation can be readily confirmed by an analysis of spelling mistakes today. Over the course of years, I have kept lists of spelling mistakes of students ranging from third-form boys at an English Grammar School to adults from educationally deprived areas in America to university students, including many from foreign countries. Over 90 % of all the mistakes recorded involve the substitution of a letter or group of letters with precisely the same phonetic values as the correct spelling, e.g., *embarass* (*r* and *rr* both = [r]), *percieve* (*ie* and *ei* both = [i]), *shure* (*sh* and *s* here both = [ʃ]), *reunight* (*-ight* and *-ite* both = [ait]). Sometimes the spelling reflects an identification of sounds in non-standard speech, e.g., *pin* for *pen*. Bilinguals show confusion of equivalent symbols to the same degree as monolinguals, plus some confusion of similar sounds through underdifferentiation of phonemes, e.g., *bat* for *vat*, *hendle* for *handle*. Relatively few mistakes fail to reflect actual pronunciation and these can generally be explained on orthographic grounds as visual spelling analogies (*hugh* for *huge*), inversions (*atmoshpere* and *obvilion*), haplographies (*competion* for *competition*), or dittographies (*accepteted*).

With allowances made for a less literate society and consequently less exposure to writing on public signs, etc., spelling mistakes in the papyri are similarly instructive for the phonology of post-classical Greek, in which there was a disparity between spelling and pronunciation analogous to that in present-day English. The fixed conventional spelling system of Greek progressively failed to reflect a radically changing pronunciation, so that by Roman and Byzantine times many sounds had several possible representations in writing. In addition, there is evidence that many writers failed through bilingual interference to perceive and produce sound distinctions in Greek which did not correspond to sound distinctions in Coptic.

There are, of course, limits to the extent that spelling mistakes can reveal the pronunciation of a dead language.

First, in any dead language, neither the original sounds nor the transitional sounds can be assigned precise phonetic values. But phonemic oppositions can be established, that is, a given sound can be distinguished from other sounds which are significant in the language at a particular place and time, and relative phonetic values for these sounds can be drawn up. In most languages, of which Greek is an outstanding example, the original values can be reconstructed by comparative studies of cognate sounds in related languages to within certain definite articulatory positions. With the original sound system thus determined, and the current state of development of the system easily ascertainable from the modern spoken form of the language, the general framework of the sounds of that language over the transitional period as a whole is clear.

Second, phonetic changes can take place without being reflected in writing, independently of the orthographic correctness of the writer. For when a phonetic change takes place, or when in terms of bilingual interference there is simple phone substitution of the values of the primary language for those of the acquired language, the value of the letter or letters which represented the original sound also changes with it, so that if the phonemic system remains unaltered, no orthographic variations need occur. Theoretically, the pronunciation of all the sounds in a phonemic system could change without affecting their oppositions. Then the orthography would not reflect the phonetic shifts, because the values of the letters would simply be those of the new pronunciation in place of the old. Changes in orthography tend to occur where there has been phonemic merger, i.e., where two originally distinct sounds have become identified, or phonemic split, i.e., where two originally sub-phonemic sounds, or allophonic realizations of a phoneme in complementary distribution, become significant in the sense that a word can be distinguished by one or other of these sounds which have now come into opposition.

Third, precise time limits cannot always be given for the sound changes which occur. Until the sounds in question have become identified, and not merely phonetically similar, indiscriminate interchange of their written symbols will not regularly occur. Alternatively, if the allophones of a phoneme are diverging, no orthographic variations will be expected in writings of native speak-

ers of the language until the process has produced two phonemically distinct sounds. But reflections of approximate sounds will appear considerably earlier in documents written by foreign speakers whose native language does not have the same phonemic distinction.

Fourth, sound changes do not occur at the same time throughout a widespread linguistic community, but may be quite localized for a considerable period. In the papyri, dialectal variations cannot always be distinguished because of the disproportionate and somewhat fortuitous distribution of papyrus finds.

Finally, not all orthographic variations are phonetically significant; sheer mistakes and slips of the pen do occur. Slips of the pen (or mind) usually fall into one of the following categories.

a. Anticipation and repetition. Many variations appear to be the result of mental leaps to following sounds or forms, or inadvertent repetitions of preceding ones. These include the omission of a single letter or syllable preceding an identical one (haplography) and the reproduction of a letter or syllable after an identical one (dittography). These phenomena are effects of psychological and mechanical rather than phonological causes.

b. Inversion. The transfer of position of two letters, except in instances of true metathesis paralleling known types explainable on phonological grounds, usually occurs inadvertently and results in spellings like *atmoshpere* which do not reflect an actual spoken form.

c. Mechanical reproduction. A variation can often be explained as the substitution of a common sequence of letters for a rarer one. For instance, I sometimes write *king* when I mean to write *kind*. This is a mechanical process; my fingers are more accustomed to reproducing the frequent sequence *-ing* than the less common *-ind*.

d. Analogical formation. If the variation can be explained as a morphological phenomenon, i.e., a new formation for which there is a model in another type predominant through density of usage in a particular context, or through association in sound or meaning, it is significant not for phonology but for morphology.

e. Etymological analysis. Words, especially compounds, whose etymological spelling has been disturbed by sound changes antecedent to the establishment of a traditional orthography, tend to be written according to true or folk etymology, all the more frequently when the component part in question occurs more or less often as an independent word in its absolute form, differing in spelling from its combinative form. Thus, ἐκ in combination before a voiced consonant was apparently assimilated to ἐγ- and so written in an earlier period of Greek. Unless there are phonetic reasons to the contrary (as there seem to be in the case of Egyptian bilingual interference), the spelling ἐκ- in composition before a voiced consonant in the papyri may be merely an orthographic variation subserving etymological clarity, without representing an actual change in pronunciation.

The most important criterion for judging a phonologically significant variation in spelling is frequency and regularity of occurrence. When further this variation corresponds to a known Greek pattern and points in the direction of changes known from other sources to have taken place in Greek, or when it can be explained as a result of bilingual interference, then this variation can be confidently accepted as revealing the spoken form used by the writer.

SECTION ONE

CONSONANTS

I. STOPS[1]

In the papyri there is considerable confusion of the letters which represented stop consonants in classical Greek. γ and δ interchange very frequently with ϰ and τ respectively, while β interchanges occasionally with π. On the other hand, β, γ, δ show orthographic variations not found in connection with π, ϰ, τ. Similarly, φ, χ, ϑ interchange frequently with π, ϰ, τ, but only rarely with β, γ, δ. φ, χ, ϑ, on their part, also show variants which π, ϰ, τ do not. These phenomena are found in documents from all areas of Egypt throughout the Roman and Byzantine periods, and lead to the following phonological interpretations.

1. π, ϰ, τ represent voiceless stop phonemes /p k t/.

2. β represents a voiced bilabial fricative /β/ which generally replaced the classical voiced bilabial stop /b/ by the first century A.D.

3. γ represents a voiced velar stop /g/ except in individual words in which it has been replaced by a voiced palatal fricative /j/ from the first century A.D. on. It also serves to represent a bilabial vowel glide [w] from the first century A.D. on.

4. δ represents a voiced dental stop /d/ except where it has shifted to a voiced dental fricative [ð] before /j/ (i.e., prevocalic ι) from the first century A.D. on, before /i/ (i.e., every ι and its orthographic equivalents) from the third century A.D. on, and in other positions from the third or fourth century A.D. on.

5. The frequent unconditioned interchange of γ and δ with ϰ and τ respectively indicates the identification of the voiced and voiceless phonemes originally represented by these symbols in a single velar /k/ and dental /t/ phoneme in the speech of many writers. This was the result of bilingual interference from the Egyptian language in which there were only voiceless stop phonemes.

6. The occasional interchange of β and π indicates that /β/ and /p/ were also identified by some speakers. But since /b/ had generally shifted to /β/ and

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[1] Schwyzer i, 204-11, 290-303, 325-8; Lejeune, § 27-66, 149; Buck, *GD*, § 61-68; *MS*, 74-80, 102-5; Schweizer, 103-18; Nachmanson, 74-80; Hauser, 54-59; Rüsch, 187-99; Mayser i², 1, 141-59; Crönert, 81-91; *BDF*, § 33, 34.5-6, 39.2, 40, 41.2; Psaltes, 65-75, 77, 86-89, 95-97.

was no longer a stop consonant, it seems to have been identified by other speakers with Coptic /β/.

7. The frequent interchange of φ, χ, ϑ with π, κ, τ in specific phonetic conditions indicates that aspirated stops tended to lose their aspiration in these positions.

8. The occasional unconditioned interchange of φ, χ, ϑ with π, κ, τ indicates the identification of aspirated stops with their corresponding voiceless stops in the speech of individual writers.

9. There is little evidence in the papyri for the shift of the aspirated stops /ph kh th/ to fricatives /f x ϑ/.

A. VOICELESS STOPS (π κ τ)

All orthographic phenomena involving π, κ, τ, including the interchange of these symbols with β, γ, δ on the one hand, and with φ, χ, ϑ on the other, point to the preservation of the classical voiceless stop phonemes /p k t/ throughout the period of the papyri as in Modern Greek. Only conditioned variants are indicated by the following orthographic variations.

1. π, κ, τ are sometimes omitted, especially in connection with other consonants, reflecting a tendency to simplify consonant clusters in colloquial speech. The omission of π is most common, especially between μ and another consonant.

a. Omission of π.

1) In the cluster /mpt/.

a) In forms of πέμπτος:

πέμτου *PMed.* 4.9 (A.D. 2); *WO* 3.3; 4.4 (A.D. 18); *SB* 7663 = *PLBat.* i, 8.30 (A.D. 86); *PFay.* 91.51 (A.D. 99); *PRein.* 43.6 (A.D. 102); *PPetaus* 31.8 (A.D. 183/4); etc.
πέμτῳ *PMich.* 264-5.7,8 with πέμπτου, πέμπτῳ 10,12 (A.D. 37)
πέμτης *OROM* 64.3 (3rd/4th cent.); *PGen.* 70 = *WChr.* 380.2 (A.D. 381); *StudPal.* iii, 57.3 (6th cent.); 437.1 (6th/7th cent.); 592.1 (7th cent.); etc.

b) In combinative forms of -λημπτ-:

[ἐγ]λημτόρων (for ἐγλημπτόρων) *PTebt.* 612 descr. (1st/2nd cent.) ἐγλήμτορες *PHamb.* 69.3 (A.D. 146)
παραλημτής *OTait* 1660.3 (A.D. 154?)

c) In other words:

κάμτρα[ς] (for κάμπτρας) *PLBat.* i, 18.11, with πέμσις for πέμψεις 17 (3rd cent.)
ἐμτίου (for ἐμπτίου, *emptio*) *PVars.* 28.2 (6th cent.)

2) In the cluster /mps/ (where /s/ = second element of digraph ψ).

a) In forms of πέμπω (frequently):

πέμσις, πέμσαι (for πέμψεις, πέμψαι), etc. *PFay.* 113-20, passim 21 times, letters of Gemellus (A.D. 100-108)
ἔπεμσας, ἔπεμσε, ἔπεμσα (for ἔπεμψας, etc.) *POxy.* 528.11-12,19,24 (2nd cent.); sim. *PMeyer* 20.12, etc. (1st half 3rd cent.); *PBon.* 45.4,9 (3rd cent.); *PNYU* 25.5, etc. (4th cent.); etc.
cf. ἔπεμσα, πέμσε (for ἔπεμψα, πέμψαι) *SB* 9843.4,6 (from Palestine, early 2nd cent.)
πέμ|σον (for πέμψον) *BGU* 602.8-9 (2nd cent.)
πένσαι (for πέμψαι) *PJand.* 10.3 (3rd cent.)
πέμσο (for πέμψω) *PApoll.* 62.2 (A.D. 703-15)
cf. πέμσειν (for πέμψειν) *PColt* 145.5 (6th/7th cent.)

b) In κομψῶς:

κομσῶς (for κομψῶς) *SB* 10240.6 (A.D. 41); *POslo* 155.2 (2nd cent.); sim. *SB* 7660.7-8 (ca. A.D. 100); prob. also *PStrassb.* 73.16: *BL* iv, 231 (3rd cent.)

3) In other consonant clusters (mainly before /s/ or /t/):

προγέγραται (for προγέγραπται) *BGU* 189 = *MChr.* 226.12 (A.D. 7)
προκό|σαι (for προκόψαι) *BGU* 423 = *WChr.* 480.17-18 (2nd cent.)
ἐπικαλύσαντος (for ἐπικαλύψαντος) *PRossGeorg.* ii, 22.4 (A.D. 154-9)
Τολεμαίου (for Πτολεμαίου) *PCairIsidor.* 17.37 (A.D. 314)
περιβλέτου (for περιβλέπτου) *StudPal.* iii, 30.3 (6th cent.)

b. Omission of κ (mainly before τ):

ἐφόρια (for ἐκφόρια) *PTebt.* 577 descr. (A.D. 37); sim. *OEdfou* 318.2, corr. 7 (Byz.)
κελήρωμαι (for κεκλήρωμαι) *SB* 7032 = *PMich.* 187.35 (A.D. 75)
ἐπικελιμένος (for ἐπικεκλιμένος) *PMich.* 224.1955 (A.D. 172/3)
δατύλ(ῳ) (for δακτύλῳ) *PStrassb.* 231.2 (1st half 2nd cent.)
πρατόρων (= πρακτόρων for πράκτορσι) *OOslo* 10.3 (A.D. 211)
δεκαοτώ (for δεκαοκτώ) *OMich.* 25.9 (A.D. 279)
ὠτωκοσίας (for ὀκτακοσίας) *POslo* 44.6 (A.D. 324)
ἰνδιτίονος (for ἰνδικτίονος) *BGU* 1049.19 (A.D. 342); sim. *POxy.* 1902.5 (early 6th cent.)
cf. ἄτενος (for ἄτεκνος) *SB* 707.2, tombstone (1st cent.)

Note. The loanword κράβα(τ)τος and its derivatives are usually written -κτ-:[1]

κράβακτος *PTebt.* 406.19 (ca. A.D. 266); sim. *OTait* 2327 descr. (3rd cent.); *PSI* 1040.27 (3rd cent.); *PMichael.* 18, iii. 8 (mid 3rd cent.); *PGen.* 68.10 (A.D. 382); *PCairMasp.* 6 V. 97 (ca. A.D. 567); *POxy.* 1925.4,15 (7th cent.)
κραβάκτια *PCairMasp.* 6 V. 88-89 (ca. A.D. 567)
κραβάκτηρον *PCairMasp.* 6 V. 46, with γράβακτα same line (ca. A.D. 567)

The spelling κράβατος occurs in *SB* 4292.9 (Rom.) and κράβαττος in *PLond.* 191 (ii, 264-5).16 (A.D. 103-17), with κρέβατι (for κράβατοι) *SB* 9834 b). 45 (early 4th cent.); cf. κ̣ραβατίου *PColt* 180.8 (6th/7th cent.). The letters are not clearly read in other occurrences of this word.

c. Omission of τ.

1) The occasional omission or assimilation of τ after σ:

ἐσσί (for ἐστί) *BGU* 602.8 (2nd cent.); *SB* 8027.10 (2nd/3rd cent.); *BGU* 385 = *WChr.* 100.6 (2nd/3rd cent.); ἐσσίν *POxy.* 2154.18 (4th cent.)
ἐπισόλιον (for ἐπιστόλιον) *PMich.* 500.3 (2nd cent.)
γράσι (for γράστιν), etc. *PHamb.* 39 A, iii.22, etc. five times, with γράστιν five times (A.D. 179)
ἐφέσιον (for ἐφέστιον) *POslo* 111.235 (A.D. 235)
πισσικίου (for πιστικίου) *PCairIsidor.* 48.2,4; 49.5, with πιστικίου 2 (A.D. 309)
σιχαρίου (for στιχαρίου) *SB* 7536 = *PLBat.* i, 7.9 (4th cent.); sim. *PSI* 1423.13; 1564.5 (4th cent.)
cf. σαδίου (for σταδίου) *POxy.* 1478 = *PGM* 27.3 (late 3rd/early 4th cent.)

The converse occurs in πρ̣οφεστίονα (for προφεσσίωνα *professio*) *SB* 7662.13 (late 2nd cent.).

The occasional omission or assimilation of τ after σ indicates a tendency to simplify the consonant cluster /st/, possibly through bilingual interference, for the phenomenon is paralleled in Greek loanwords in Coptic.[2]

Note. Initial στ- and σ- appear with approximately equal frequency in στιππεῖον/σιππεῖον and their derivatives.[3] Most occurrences are from the third century or later.

Spellings with στ-:

στιππουργῶν *PRyl.* 374.4 (late 1st cent. B.C./early 1st cent. A.D.);

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[1] As predominantly in NT cod. ℵ (Moulton-Howard ii, 102; *BDF*, § 42.4).

[2] Cf. S ⲥⲁⲧⲉⲉⲣⲉ, B ⲥⲁⲑⲉⲣⲓ (= Gr. στατήρ) in NT codd. (Böhlig, 115).

[3] The class. στυπ- is found only in the 3rd cent. B.C. and in *PPrinc.* 13 xviii.4 (dbtfl.) (ca. A.D. 35) and *PMich.* 465.28 (A.D. 107).

sim. *PGrenf.* ii, 86.8 (A.D. 595); 87.11 (A.D. 602); *PLond.* 387 (ii, 331-2).20 (6th/7th cent.?); 450 (ii, 334).1 (7th cent.); etc.

στίππου *OTaitPetr.* 290.5 (A.D. 62); clearly *PCairGoodsp.* 30, xxxvii.11 (A.D. 191-2); *PPrinc.* 136.7 abbrev., etc. (4th/5th cent.)

στιππίου *POslo* 161.6 (late 3rd cent.); *SB* 7756.6,12 (A.D. 359); 9137.11 (5th cent.); *POxy.* 2243 a.26 (A.D. 590); etc.

στιππε̄α (for στιππεῖα) *PJand.* 132.5 (6th/7th cent.); *PLond.* 450 (ii, 334).3 (7th cent.); sim. *PLond.* 1442.3,21 (Arab.)

Spellings with σ-:

σιππε̄α (for σιππεῖα) *PSI* 1557.26 (A.D. 214); sim. *PLond.* 239 = *PAbinn.* 31.18 (ca. A.D. 346); *PSI* 1564.16 (4th cent.); etc.

σιππίου *BGU* 1080 = *WChr.* 478.18-19 (3rd cent.); *PLond.* 979 (iii, 234-5). 13, sim. 17 (A.D. 346); *StudPal.* xx 96.6 (4th cent.); 103.11-12 (A.D. 381); *PHermRees* 22.14, sim. 15 (A.D. 394); etc.

σιππουργῷ *PFlor.* 310.1 (A.D. 425/35?); sim. *PStrassb.* 287.1 (6th cent.)

2) τ is sometimes omitted in connection with other consonants:

ἑπακοσίους (for ἑπτακοσίους) *POxy.* 243 = *MChr.* 182.35 (A.D. 79)
ἀδιαλίπως (for ἀδιαλείπτως) *PGiss.* 67.6-7 (ca. A.D. 117)
ἔσοπρον (for ἔσοπτρον) *PMerton* 71.4 (A.D. 160-3)
τερώβ(ολα) (for τετρώβολα) *PMich.* 224.6315 (A.D. 172-3)
ἕκης (for ἕκτης) *POxy.* 475 = *WChr.* 494.16 (A.D. 182)

Note. The spelling μαφόριον, etc., for the somewhat more common μαφόρτιον, diminutive of μαφόρτης (cf. Latin *mafors*, *mafortis*; *maforte*), corresponds to the normal spelling in Byzantine Greek.[1]

μαφόρια *PPrinc.* 95.19 (4th cent.?); *SB* 7033.39, cf. 36 (5th cent.); *PCairMasp.* 6 V.80 (ca. A.D. 567)

μαφόριον *PStrassb.* 131 = *SB* 8013.8 (A.D. 363); *BGU* 948.19-20 (prob. 4th/5th cent.); *SB* 9158.7 (5th cent.); *POxy.* 1026.17,18, sim. 3-4 (5th cent.)

μαφόριν, μαφόρια *StudPal.* xx, 275.2,5 (6th cent.)

στιχαριομαφόριον *POxy.* 1978.3, etc. (6th cent.); sim. *SB* 6024.2,3,7 (Byz.)

σουβροκομαφόρτια (for σουβρικο-) *POxy.* 905.7 (A.D. 170)

μαφόρτιον *POxy.* 1295.19 (2nd/early 3rd cent.); 921.7; 1310 descr. (3rd cent.); 109.6,7 (late 3rd/4th cent.); *PMeyer* 23.6 (Byz.); etc.

μαφόρτιν *POxy.* 114.6, with δερματικομαφόρτιν 5 (2nd/3rd cent.); *PGrenf.* i, 53 = *WChr.* 131.7 (4th cent.); *POxy.* 2156.17-18,19 (late 4th/5th cent.); *POslo* 64.11 (5th cent.)

[1] See E. A. Sophocles, *Greek Lexicon of the Roman and Byzantine Periods* (Boston, 1887) and G. W. H. Lampe, *A Patristic Greek Lexicon* (Oxford, 1961), s.v.

μαφόρτια *PTebt.* 405.4 (3rd cent.); *POxy.* 2273.11 (late 3rd cent.); sim. *PMichael.* 18 ii.4 (3rd cent.); *PRyl.* 627.6 (A.D. 317-23)
μαφορτίου *PSI* 1082.14 (4th cent.?)

Although the spelling without τ first occurs in papyri from Egypt in the fourth century, μ[α]φόριν is found in *PDura* 30.17 (A.D. 232).

2. π, κ, τ sometimes interchange through inversion or anticipation, especially in tongue-twisters.

κατυκιτῶν (for κατοικικῶν) *PMich.* 252.10 (A.D. 26/27)
κατυτικῆς *POxy.* 504.12 (early 2nd cent.)
κροκείμενον (for προκείμενον) *PMich.* 276.28,33 (A.D. 47); *StudPal.* xxii, 40.29 (A.D. 150)
cf. τοδάκες (for τοκάδες) *SB* 9245.2 (2nd/3rd cent.)

B. VOICED STOPS/FRICATIVES (β γ δ)

1. β is frequently used to transcribe Latin consonantal *u* (*v*). It is also occasionally substituted for, added to, or omitted in connection with the second element of an αυ or ευ diphthong. These phenomena indicate that β normally represents not the classical voiced bilabial stop /b/ but a bilabial fricative /β/.[1]

a. Latin consonantal *u* (*v*), already [β],[2] is usually transcribed by Greek ου or υ, e.g., Σεουήρου and Σευήρου *Severus PMich.* 551.9 (1st hand) and 25 (2nd hand) (A.D. 103), but it is transcribed by β with increasing frequency from the first century A.D. on.[3]

1) Initially:

βιάτικον *viaticum BGU* 423 = *WChr.* 480.9 (2nd cent.); sim. *PCairGoodsp.* 30 xli.18 (A.D. 191-2)
Βουκοντίων (*ala*) *Vocontiorum BGU* 114 = *MChr.* 372 i.17 (2nd cent.); *SB* 5218.1 (A.D. 156); *BGU* 4.10-11 (2nd/3rd cent.); etc.

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[1] Evidence for the shift of the voiced bilabial stop to a fricative appears as early as the 5th cent. B.C. in inscrr. from Laconia and the Argolid and in the next cent. from Crete (Schwyzer i, 207-8; Lejeune, § 38; cf. Jannaris, § 51). A fricative pronunciation is first reflected in Att. and Asia Minor inscrr. ca. the beg. of the 1st cent. A.D. (*MS*, 77; Schweizer, 105). In the Ptol. papp., the spelling ῥάυδους (for ῥάβδους), found in different forms 3 times in the hand of the same writer, points to a fricative pronunciation (Mayser i²,1,151). Cf. the insertion of υ before β in ῥα'υ'βδίν (for ῥαβδίον) *PSI* 972.7 (4th cent. ?).

[2] Leumann-Hofmann i, 130; Sturtevant, 142-3, 174.

[3] Graphs showing the increasingly frequent use of β to render Lat. *v* are given by H. Zilliacus, "Till frågan om det grekiska B:s övergång till spirant," *Eranos* 33 (1935), 71, 73. See also Meinersmann, 111-12, and the lists of Lat. loanwords in the Greek papyri in Meinersmann; Wessely, "Lat.," *Wiener Studien* 25 (1903), 53-57; Cavenaile, "Influence latine"; and Daris, *Lessico*.

βικαρίου *vicarius* *POxy.* 1436.21 abbrev., 40 (A.D. 153-6); *SB* 8092.12 (ca. A.D. 500); *POxy.* 1883.11 (2nd hand), with οὐικαρίου 2 (1st hand) (A.D. 504); etc.

Βίκτωρ *Victor* *OEdfou* 314 (3rd cent.); *PAntin.* 91.15, sim. 20 (6th cent.); *POxy.* 136 = *WChr.* 383.10, etc. (A.D. 583); *POxy.* 158.6 (6th/7th cent.); etc.

βιξιλατίωνος *vexillatio* *PGen.* 62 = *PAbinn.* 16.9 (ca. A.D. 346)

βέρβων *verbum* *PMon.* 14.71 (A.D. 594)

2) Medially after a consonant:

Σαλβίου *Salvius* *POxy.* 1756.6 (1st cent.); *PHamb.* 29.20 (after A.D. 94); *BGU* 1617.8 (prob. A.D. 198)

κερβικάριον *cervicale* *POxy.* 1269.37 (early 2nd cent.); *StudPal.* xx 46 R. 19 (2nd/3rd cent.); sim. *BGU* 814.11 (3rd cent.); etc.

Σιλβανός *Silvanus* *PSI* 1154 η.2 (2nd cent.); *PSI* 1258.1 (3rd cent.); *POxy.* 2242.1,23 (3rd cent.); *POxy.* 43 V = *WChr.* 474 iii.30, sim. v.2 (A.D. 295); etc.

Σιλβανοῦ *PLond.* 975 (iii, 230).1,22 (A.D. 314); 1247 (iii, 225-6).6 (A.D. 345); etc.

Ἑλβίου *Helvius* *PMich.* 175.23 (A.D. 193); cf. also earlier in inscr. *SB* 5886.2 (A.D. 89)

3) Intervocalically:

πρεβέτοις *privatus* *BGU* 781 vi.7 (1st cent.)

πριβατίου *StudPal.* viii. 1033.2 (6th cent.); sim. *PCairMasp.* 9 V.23 (6th cent.)

πριβαταρί[ου] *POslo* 119.11-12 (A.D. 319)

Φλαβία *Flavia* *BGU* 1893.404 (A.D. 149); sim. *OMichael.* 92.1; 93.1; 94.1 (1st half 3rd cent.); *POxy.* 43 R v.13 (A.D. 295); etc.

Φλαβίῳ *Flavius* *BGU* 1895.58 (ca. A.D. 157); sim. *POxy.* 2232.5 (A.D. 316); etc.

Φλαβίου *PSI* 1254.18 (A.D. 237); *PAbinn.* 46.9 (A.D. 343); etc.

ἤβο[κᾶτ]ος *evocatus* *POxy.* 33 = *WChr.* 20 iii.11-12 (late 2nd cent.)

ἠβωκατῶρες *PRossGeorg.* iii, 1.7 (A.D. 270: *BL* iii, 156)

Σεβήρου *Severus* *SB* 9332.11 (A.D. 199); *BGU* 9 = *WChr.* 293 i.4,20; ii.15, etc. (prob. late 3rd cent.)

βρέβιον *breve* *PBeattyPanop.* 2.212 (A.D. 300); sim. *PLond.* 1249 (iii, 227-8). 7 (A.D. 346: *BL* i, 290); *PHermRees* 23.1 (4th cent.); *PIFAO* ii, 12 b).1 (5th cent.); *PLond.* 1904 descr.2 (5th/carly 6th cent.); etc.

Cf. the combination of both orthographies:

Φλαουβίου *Flavius* *SB* 4122.2, with Φλαυβίας 5, inscr. (A.D. 120)

Οὐβαλέρις *Valerius* *OMich.* 203.1 (early 4th cent.)

b. β is occasionally substituted for, added to, or omitted in connection with

the second element of an αυ or ευ diphthong, mainly in the Byzantine period, when αυ/ευ = [αβ/εβ].[1]

1) ευ > εβ:

προσαγορε͂βσε (for προσαγορεῦσαι) *PJand.* 101.9 (5th/6th cent.)
οἰκουσκεβῇ (for οἰκοσκευῆς) *PLond.* 1610.57 on back of Copt. doc. (A.D. 705-9: *BL* v, 58)

2) εβ > ευ:

Πνευτύνις (= Πνεβτύνι 5,16: 1st hand) *PMich.* 263.24, sim. 30 (2nd hand) (A.D. 35/36)
Ταπνευτύνιος *PMich.* 277.1 (A.D. 48); sim. 288-9.1 (1st cent.); 301-2.1, etc. (1st cent.)
ἑυδόμῃ (for ἑβδόμῃ) *PLond.* 1914.47 (A.D. 335?); cf. the more frequent omission of β in this form below.

3) ευ > ευβ:

Πoριεύβθης (for Πoριεύθης) *OTaitPetr.* 223.1 (A.D. 6)
προσαγορεύβομε (for προσαγορεύομαι) *PRossGeorg.* iii, 10.6, etc. 8 times (4th/5th cent.)
προσαγορεύβω *SB* 10269.1 (6th cent.); cf. *BASP* 4 (1967), 38

4) αυβ > α(ο)υ:

ναύιαν, ναύια (for ναύβιον, ναύβια) *PMich.* 596.5,17 (A.D. 328/43)
ναουΐων (for ναυβίων) *PMich.* 611.20 (A.D. 412); *POxy.* 913.20 (A.D. 442); sim. *POxy.* 1053.3, etc. (late 6th/early 7th cent.)
ναυείων (for ναυβίων) *POxy.* 1968.8 (6th cent.); *PMichael.* 34.8 (6th cent.); *PBerlZill.* 7.26 (A.D. 574)

c. β is sometimes omitted:

ἑδόμο (for ἑβδόμου) *PMich.* 274-5.10, corr. 11 (A.D. 46/47)
ἕδομον (for ἕβδομον) *PMich.* 276.16 (A.D. 47)
ἑδομήκοντα (for ἑβδομήκοντα) *PLBat.* xvii, 10.18 (A.D. 523)
ἑδωμίκοντα *PGiss.* 123 descr. (6th cent.)
σουρικοπάλλιν (for σουβρικοπάλλιον) *PTebt.* 405.2 (3rd cent.)

d. The omission of β after μ probably indicates the retention of the bilabial stop in this position, as in Modern Greek:

γαμρᾶς (for γαμβρᾶς) *PMich.* 123 V X.10 (A.D. 45-47); *SB* 6294.14: *BL* ii, 2, 123 (A.D. 336)
γαμροῖς (for γαμβροῖς) *PFay.* 127.11 (2nd/3rd cent.); sim. *POxy.* 2421.73 (early 4th cent.); *PFouad* 85.11 (6th/7th cent.)

[1] See below, pp. 226-34.

e. β also interchanges rarely with μ:

ῥύβη (for ῥύμη) *PRyl.* 160c, i.6 (A.D. 32); 160d = *SB* 5109 i.5 (A.D. 42); 162.17 (A.D. 159)

μενεπικιαρίου *beneficiarius PPetaus* 34.7 (A.D. 184)

For the occasional interchange of β and π, see below, pp. 83-84.

2. γ is occasionally omitted or inserted before a front vowel and is sometimes substituted for ι. It is also occasionally omitted or inserted in connection with rounded vowels.

a. Phenomena involving the omission or insertion of γ before a front vowel, or omission of the following vowel, indicating the shift of the voiced velar stop /g/ to fricative [j] in this position, as in Modern Greek.[1]

1) The occasional omission of γ or the following ι in forms of ὑγιής [hyjis] and its derivatives, showing that both γ and ι represent [j] in this word.

a) γ omitted:

ὑιῆ (for ὑγιῆ) *POxy.* 729.23 (A.D. 137); *PCornell* 45 = *SB* 9833.21 (A.D. 299)

ὑειοῦς (for ὑγιοῦς) *POxy.* 1110.21 (A.D. 188)

ὑίας (for ὑγιείας) *BGU* 385 = *WChr.* 100.8 (2nd/3rd cent.)

ὑιῶς (for ὑγιῶς) *POxy.* 2769.20 (A.D. 242)

ὑιαίνειν (for ὑγιαίνειν) *POxy.* 1583.2 (2nd cent.); *PFay.* 127.3-4 (2nd/3rd cent.); sim. *PLBat.* i, 14.5 (2nd cent.); *PPrinc.* 70.3 (2nd/3rd cent.); *SB* 8000 = *PMed.* 81.5-6 (4th cent.); *PSI* 825.4 (4th/5th cent.); etc.

b) ι omitted:[2]

ὑγῆ (for ὑγιῆ) *PMich.* 312.32 (A.D. 34); *BGU* 912.13-14 part. rest. (A.D. 33); *PSI* 1030.22 (A.D. 109); *POxy.* 530.20 (2nd cent.); etc.

ὑγένιν (for ὑγιαίνειν) *PMich.* 577.2 (A.D. 41-69); sim. 464.3 (A.D. 99); *SB* 7354.4 (early 2nd cent.); *PMich.* 485.20 (2nd cent.); *PPrinc.* 167.4 (3rd cent.); etc.

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[1] The shift of the class. Greek voiced stop /g/ represented by γ to a fricative is attested dialectally as early as the 4th cent. B.C. (Schwyzer i, 209; Lejeune, § 38), but its phonetic quality (whether palatal [j] or velar [ɣ]) is not clear. The earliest exx. show the fricative only after a front vowel and before a back vowel, e.g., Pamph. Μhειάλαν = Μεγάλᾱν (Lejeune, *ibid.*) and ὀλίος (for ὀλίγος) freq. in Att. inscrr. from 300 B.C. on (*MS*, 75), where the omission of γ might indicate the velar fricative [ɣ]. The palatal fricative [j] (an allophone of the median resonant/semi-vowel represented by the same IPA symbol) is first clearly attested in 2nd cent. B.C. Ptol. papp. in forms of ὑγιαίνειν (Mayser i², 1, 142). See further Rüsch, 194; Crönert, 91; Schweizer, 108-9 (no direct evidence for fricative γ); Dieterich, 86-88; Kretschmer, *Entst.*, 15-16; Thumb, *Hell.*, 134-5; *Handbook*, § 22-24.

[2] See further the freq. omission of ι in forms of ὑγίεια under Contraction below, pp. 296-7.

2) The rare omission of γ before front vowels in other words:

ὧν εωρ|γῶι (for γεωργῶ) *SB* 7376.31-32, with γεωργοῦ 6,10 (A.D. 3)
σεβ[ασ]τοῦ ερμανικοῦ (for Γερμανικοῦ) *PFlor.* 353.2,5 (A.D. 81-96)
ἀρυρικ[ή]ν (for ἀργυρικήν) *PLBat.* vi, 13.19, corr. 40 (A.D. 113/14)
λέει (for λέγει) *POxy.* 1142.9 (late 3rd cent.); (for λέγειν) *POxy.* 2599.16 (3rd/4th cent.)
ἁϊωτάτης (for ἁγιωτάτης) *PSI* 1128.18 (3rd cent.)

3) The converse insertion of γ before a front vowel to represent the vowel glide [j] in μνααῖον and its by-form μναεῖον:[1]

μναγεῖα *SB* 7816 = *PSI* 1263.20 (A.D. 166/7)
μναγαῖον *POxy.* 905.6 (A.D. 170)
μναγιαῖον *POxy.* 1273.17 (A.D. 260)

The presence of a vowel glide [j] in these forms is reflected elsewhere by insertions of ι or ει, e.g., μναιαίων *CPR* 12 = *StudPal.* xx, 2.5-6 (A.D. 93); μναειαίου *PMilVogl.* 85.17 (A.D. 138); μναειαῖα *PSAAthen.* 30 R.12, with μναααῖον (*sic*) 13 (A.D. 178/9).[2]

4) The sporadic insertion of γ to represent the vowel glide [j] before a front vowel in other words:

ἱγεροῦ, ἱγερῷ, [ἱ]γερῖς (for ἱεροῦ, ἱερῷ, ἱερεῖς) *BGU* 1197.3,5,10, with ἱερέως 2; sim. 1198.4-5,10,11, corr. 2, etc. (5/4 B.C.)[3]
ὑγίου (for υἱοῦ) *SB* 7600.13 (A.D. 16)
ἀ[να]γκαίγει (for ἀναγκαίῃ) *SB* 4669.11 (A.D. 614)

5) The transcription of the Latin name *Traianus* with a γ representing the vowel glide of the Latin consonantal *i* (*j*):[4]

Τραγιανοῦ *PBrem.* 69.12 (A.D. 98)
Τραγειανοῦ *BGU* 68.12,25 (A.D. 113/14)
cf. also Πονπηγίωι, etc. (for Πομπήιωι) *PMerton* 63.1,11,26,31 (A.D. 57)

The presence of a vowel glide [j] in Τραιανός is also reflected by transcriptions with a diaeresis over the ι, e.g., Τραϊανοῦ *PMich.* 572.2 (A.D. 131); *PLBat.* xiii, 11.26 (A.D. 138); *BGU* 74.4 (A.D. 167); and perhaps by the expansion of ι to ει, e.g., Τραειανοῦ *PMich.* 201.19 (A.D. 99); *SB* 9545 (16).3, etc., (A.D. 106/7); *WO* 49-87, 29 times (A.D. 98-117); etc., or to υι in Τραυιανῆς *BGU* 69 = *MChr.* 142.2 (A.D. 120); cf. also Τραηανοῦ *WO* 106.5 (A.D. 117).

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1 *LSJ* s.v. also cites μναγιαῖος *PLond.ined.* 2199 (4th cent.).

2 Cf. already in the Ptol. papp. μναιεῖα *PCairZen.* 22.1,13 (3rd cent. B.C.); μναιεί[ων *PLille* 15.1 (242/1 B.C.); μναιεῖα *PPar.* 10 = *UPZ* 121.10 (156 B.C.); μναιῆον *BGU* 1532 (Ptol.). μναιαῖος is found in Arist. Plb. D.S. Ph. (*LSJ*, s.v.).

3 Cf. Mayser i², 1, 142; the phenomenon is much more common in the Ptol. papp.

4 Cf. Τραγιανός in inscr. (Eckinger, 101; Dieterich, 58).

6) The transcription of Egyptian names with γ representing Egyptian ỉ [j]:[1]

Ḥr-ỉj.w:

Ἑργεύς *SB* 5244.4 (8 B.C.); *PRyl.* 160-160d, passim (1st cent.); *PGiss.* 58 i.28 (A.D. 116); etc.

Ἑργέως *SB* 5231.2, etc. (A.D. 11); *PSI* 1032.3 (A.D. 145/6); *StudPal.* xx, 34.4 (A.D. 232/3); etc.

Ἑριγέος, Ἑριγέως *BGU* 44.4,5 (A.D. 102)

Ἑριεύς *PRyl.* 160-160d, passim (1st cent.); *PStrassb.* 265.4 (A.D. 41-54); *PMich.* 223.80 (A.D. 171-2), etc., always with -(ε)ι, never -γ-, throughout the Karanis tax rolls; *BGU* 108 = *WChr.* 227.5 (A.D. 203/4); etc.

Ἑριέως *PGen.* 27.7 (A.D. 130/1); 32.7 (A.D. 148); *BGU* 98.2 part. rest. (A.D. 211); etc.

pꜣ-wr-ỉꜣb.tỉ:

Πορεγέβϑ(ις) *OTait* 590.1 (A.D. 28); (in full) *PSI* 269.1 (A.D. 138); *WO* 1192.4 (Rom.)

Πορεγέβϑ(ιος) *OTait* 650.5 (A.D. 12); etc.

Πουρεγέβϑ(ει) *WO* 554.2 (A.D. 133)

Πορείβϑ(ιος) *OTait* 949.1 (A.D. 45)

Πανομγεύς/Πανομιεύς:

Πανομγεύς *PLond.* 901 (iii, 23-24).7 part. rest. (late 1st/early 2nd cent.); *BGU* 415 = *MChr.* 178.7 (A.D. 104/5); *PBouriant* 34.6 (2nd cent.); *PRossGeorg.* ii, 34 ii.5 abbrev. (2nd cent.); *PSI* 1324.7, etc. (A.D. 173)

Πανομγεὺς Πανομγέως *BGU* 406 = *BGU* 627 ii.10 part. rest., sim. iii.3-4,10; iv.1,19 (2nd cent.?)

Πανομγέως *PLond.* 257 (ii, 19-28).250,275 (A.D. 94); *BGU* 186.21 (A.D. 216/17)

Π]ανομγεῦτι *BGU* 44.2-3 (A.D. 102); *SB* 9369.11 (A.D. 173); etc.

Πανομιεύς *PSI* 901.1, etc. (A.D. 46); *BGU* 1635 R. 45 (1st cent.); *PLond.* 265 (ii, 233-44).456, sim. passim (1st/2nd cent.); *OTaitCamb.* 60:2 (A.D. 129); *PLond.* 1179 (iii, 144-8).7 (2nd cent.); *PFouad* 68.24 (late 2nd cent.); *BGU* 630 i.11 (ca. A.D. 200); etc.

Πανομιέως *PAmh.* 77 = *WChr.* 277.2 (A.D. 139); *BGU* 410.15 (A.D. 161); *PTebt.* 301.2 (A.D. 190); etc.

Πανομιεῦτι *SB* 8950 = *PSI* 1320.17 part. rest. (A.D. 82-96); *BGU* 590.2 (A.D. 177/8)

Πανομιεῦν *PMich.* 238.63 (A.D. 46)

Πανομιέα *PMich.* 123 R xviii.22, with Πανομιε[ῦτος xii.5 (A.D. 45-47); *BGU* 1898.275 (A.D. 172); etc.

b. Phenomena involving the omission or insertion of γ in connection with a back or rounded vowel, diphthong in -υ, or ρ.

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[1] See Vergote, *Phonétique*, 16-17; *Noms propres*, 11-12.

1) γ is sometimes omitted:

ἔραψεν (for ἔγραψεν) *PMich.* 304.10 (A.D. 42?); sim. *POxy.* 2770.23 (A.D. 304); *PLond.* 251 = *PAbinn.* 64.20 (ca. A.D. 346)
θυάτηρ (for θυγάτηρ) *PTebt.* 397.29 (A.D. 198)
μέα (for μέγα) *WO* 1220.2 (prob. 2nd/3rd cent.)
cf. με|άλον (for μεγάλον) *SB* 4590.6-7, inscr. (n.d.)
λοογράφου (for λογογράφου) *POxy.* 53.5 (A.D. 316)
cf. [ὁ]μολοῦντα (for ὁμολογοῦντα) *BGU* 2121.13 (A.D. 81-96); sim. *POxy.* 1430.19 (A.D. 324); *PMon.* 14.14 (A.D. 594); etc.
σιτολοῖ (for σιτολόγοι) *PCairIsidor.* 41.68 (A.D. 302-12)
προαούσης (for προαγούσης) *POxy.* 1265.11 (A.D. 336)

These spellings may indicate the velar fricative allophone [γ], but could indicate the palatal fricative [j], which may have been pronounced between back vowels; cf. ἀγνωιῶ (for ἀγνοῶ) *BGU* 72.7 (A.D. 191?).

Note. γ is occasionally omitted in the transcription of the Latin name *Augustus* (*Augusta*), usually accompanied by simplification of the preceding diphthong (cf. the place-name *Aosta* and French *août* 'August').

κλάσσης Ἀούστης *BGU* 741 = *MChr.* 244.7 (A.D. 143/4)
Ἄουστος *POxy.* 35 V.2 (A.D. 223)
Ἀυούστα Σερήνου *StudPal.* v, 127 = xx, 68 R, II iv.7 (3rd cent.)
Ἀούστ(ων?) *SB* 9131.6 (A.D. 300/1?); (in full) *SB* 7757 = *PCairIsidor.* 125.24 (A.D. 308)
Ἀούστου *POxy.* 1716.2 (A.D. 333); *PLond* 246 = *PAbinn.* 61.14, with Ἀγούστῳ (for -ου) 13 (A.D. 346)

2) γ is sometimes inserted after a diphthong in -υ:

Φλαυγίῳ (for Φλα(ο)υίῳ) *POxy.* 504.14,30, sim. 18,27 (early 2nd cent.); cf. Φλάϋγιος *SB* 4179, mummy label (Ptol.?)
εὐγεργετημένος (for εὐεργετημένος) *POxy.* 487 = *MChr.* 322.19 (A.D. 156)[1]
εὐγαπόδεικτον (prob. for εὐαπόδεικτον) *PCairIsidor.* 62.16 (A.D. 296)
νομιτογώμενον (for νομιτευόμενον) *POxy.* 2007.10-11 (early 6th cent.)
προσαγωρεύγω (for προσαγορεύω) *PSI* 1430.10 (7th cent.)

These examples show γ inserted in the same position and sometimes in the same words as β which represented the bilabial fricative [β]. Parallel examples are attested in codices of Hellenistic authors.[2] γ seems to have served to represent both the palatal and bilabial vowel glides [j] and [w]. Through bilingual in-

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[1] See sim. exx. in the Ptol. papp. (Mayser i², 1, 142). The explanation of graphic anticipation is possible in this word, but not in others.

[2] Cf. πεζεύγειν Plb., τοξεύγοντες Him., ναυγάγια Paus. (Crönert, 91, n. 3). See further Dieterich, 91-2.

terference, the bilabial glide may have been identified with the Egyptian labiovelar /w/.[1]

Note. γ is sometimes used in the transcription of Egyptian names to represent *w*:[2]

Ḥr-wḏ̱ꜣ:

ʽΑργώθης *PStrassb.* 5.12 (A.D. 262)
ʽΑργώθου *PLeit.* 4.15 (ca. A.D. 161); *StudPal.* v, 127 = xx, 68 II R ii.10; II R' v.7,17 (3rd cent.)
ʽΑρυώθης *OStrassb.* 43.1 (15 B.C.); 58.1 (A.D. 8); *POxy.* 2412.37 (A.D. 28/29)
ʽΑρυώτου *BGU* 1198.3-4 (5/4 B.C.); etc.

3. δ is involved in similar orthographic variations which indicate a fricative allophone [ð] of the voiced dental stop /d/ in very restricted conditions, i.e., only before /i/ (usually prevocalic ι = [j]) until Byzantine times.[3]

a. ι following δ is sometimes omitted from the first century on:

δαπέσηι (for διαπέσηι) *SB* 7376.44 (A.D. 3)
δά (for διά) *PRyl.* 160c, ii.41 (A.D. 32); *PTebt.* 307.8, corr. 7 (A.D. 208)
δώρυγος (for διώρυγος) *SB* 9480 (1) = *PMilVogl.* 167.11 (A.D. 110)
δακόσια (for διακόσια) *PGen.* 48 = *PAbinn.* 60.14 (A.D. 346)

b. ζ is sometimes substituted for prevocalic δι from the third century on:

ζώρυγα (for διώρυγα) *PMeyer* 20.18 (1st half 3rd cent.)
ζωρύγων *SB* 5126 = *StudPal.* xx, 70.25 (A.D. 261)
ζακοσίας (for διακοσίας) *POxy.* 1646.31 (A.D. 268/9)
γερζεν̣ῶν (for γερδιαινῶν, but the ν is doubtful and a letter may follow before -ων) *POxy.* 1069.9 (3rd cent.)
κερκείζα, καρύζα (for κερκίδια, καρύδια?) *POxy.* 1740.1,11 (late 3rd/4th cent.)

c. δ and ζ sometimes interchange before prevocalic and preconsonantal ι or its orthographic equivalents ει and η from the third century on.

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[1] Vergote, *Phonétique*, 11.

[2] Cf. γ for Eg. *ỉ* (above, p. 73), and Vergote, *Noms propres*, 16-17.

[3] Early evidence in the class. dialects for a dental fricative is inconclusive (Schwyzer i, 208-9; Lejeune, § 38), and there are no indications of it in the Att. or Asia Minor inscrr. or the Ptol. papp. (*MS*, 79, cf. 88-89; Schweizer, 106-7); but a fricative pronunciation is indirectly reflected in Dem. transcriptions of δ by *ts*, e.g. *Tsugl* for Διοκλητιανός (Hess, 132, n. 2) and occasional Copt. transcriptions of δ by ϭ as in S ϭⲉⲓⲫⲁⲓⲟⲥ appar. for δίψιος (Wessely, *Lehnwörter*, 8), and of prevocalic σι or ζι by ϫⲓ as in ⲥⲩⲙⲡⲟϫⲓⲟⲛ for συμπόσιον and S ⲧⲟⲡⲁϫⲓⲟⲛ for τοπάζιον (Böhlig, 110; cf. Blok, 54-55; Crum, sub ϫ).

1) δ > ζ:

Σαράπιζι, λώζι[κ]α̣ (for Σαράπιδι, λώδικα) *SB* 7992 = *PSI* 1332.5-6,13 (2nd/3rd cent.)
κνείζειν, σφυρίζειν, ζειαβαλεῖν (for κνίδι(ο)ν, σφυρίδι(ο)ν, διαβαλεῖν) *POxy.* 1158.16,17-18,22 (late 3rd cent.)
ζιά (for διά) *PLond.* 413 = *PAbinn.* 6.22 (ca. A.D. 346)
Πτολεμαίδι Εὐεργέτιζει (for Εὐεργέτιδι) *BGU* 94.2 (A.D. 289)
βαζήδον, ζήμερον (for βαδίζων, δίμοιρον) *POxy.* 1901.61,70 (6th cent.)
συνκομιζῆς (for συγκομιδῆς) *PHamb.* 68.27 (after A.D. 550)
ἐνοίζι (for ἐνώδιον) *PGot.* 14.4 (7th cent.)

2) ζ > δ:

ἀσπάδι (= ἀσπάζει for ἀσπάζεται) *POxy.* 1670.24 (3rd cent.)
σπουδάδεις, ῥείδης, χρήδεις (for σπουδάζεις, ῥίζης, χρήζεις) *POxy.* 1069.10,28,32 (3rd cent.)
τραπεδῖται (for τραπεζῖται) *POxy.* 2271.4 (mid 3rd cent.)
τραπεδίτου, τραπεδιτείαν *POxy.* 1415.14,26 (late 3rd cent.)
ὑβρίδι (for ὑβρίζει) *PSI* 972.14,17, with ὑβρίζω 15-16 (4th cent.?)

d. δ and ζ sometimes interchange in other positions from the second half of the third century on.

1) δ > ζ:

σπούζασων, ζοθῆναι (for σπούδασον, δοθῆναι) *POxy.* 1777.8,9, with δοθῆναι 14 (late 4th cent.)
cf. ζώτε (for δότε) *POxy.* 1927.4, with ἀσπίζα for ἀσπίδα 11, liturgical frag. (5th/6th cent.)

2) ζ > δ:

δεῦγος (for ζεῦγος) *PStrassb.* 277.16 (2nd half 3rd cent.)
ἐλπίδω (for ἐλπίζω) *PJand.* 11.2, with Ζημητρίῳ for Δημητρίῳ 12 (4th cent.?: *BL* i, 197); sim. *PLond.* 1889 R.6,7 (6th cent.)
cf. ἐλπίδω *POxy.* 1928.2, amulet (5th/6th cent.)
ἀσπάδομαι, etc. (for ἀσπάζομαι) *POxy.* 2599.21,26-27,36 (3rd/4th cent.)
ἀσπάδεται, ἀσπάδωμαι (for ἀσπάζεται, ἀσπάζομαι) *PSI* 831.17,20 etc., 7 times (4th cent.: *ChrEg.* 45 [1970], 357)
ἀσπάδετε, ἀσπάδομε (for -μαι) *PSI* 212.3,7-8 (6th cent.?)
δαμάδοντας (for δαμάζοντας) *POxy.* 1836.2 (5th/6th cent.)
μονάδον (for μονάζων) *SB* 5174.15 (A.D. 512); sim. 5175.18 (A.D. 513)
δυγῷ (for ζυγῷ) *SB* 9011 = *PMed.* 48.10 (5th/6th cent.)

C. INTERCHANGE OF VOICED AND VOICELESS STOPS

γ and δ interchange very frequently with κ and τ respectively throughout the Roman and Byzantine periods in all phonetic conditions, including initially

and medially, before and after vowels and consonants alike, and in pretonic and post-tonic positions without any distinction. This reflects the identification of the voiced and voiceless phonemes by many speakers in a single velar /k/ and dental /t/ phoneme. β and π also interchange occasionally in the same phonetic conditions, indicating that the sounds represented by these letters were identified by some speakers. But these sounds were not widely identified because the original /b/ had already shifted to /β/ and was no longer a voiced stop.

1. Velars.

a. Initially before both front and back vowels and before liquids and nasals.

1) γ > κ:

κόνατι (for γόνατι) *PRyl.* 160c, ii.16-17 (A.D. 32)
κείτονος (for γείτονες) *PRyl.* 160b.2 (A.D. 37)
κν̣ώσσεσθε (for γνώσεσθε) *PAmh.* 135 = *PSarap.* 96.17 (A.D. 129?)
κραφῆς (for γραφή) *PPetaus* 117.1 (ca. A.D. 185)
κινώσκε, καίνετω (for γινώσκειν, ἐγένετο) *PMerton* 38.3,22-23 (4th cent.)
κέγονεν (for γέγονεν) *BGU* 1035 = *WChr.* 23.7 (5th cent.)
κλαύγους (for γλεύκους) *PMich.* 608.9 (6th cent.)
κλυκητάτους (for γλυκυτάτους) *PFlor.* 303.10 (6th cent.)
καμβροῦ (for γαμβροῦ) *PApoll.* 41.5 (ca. A.D. 708-9)
Cf. also in the transcription of Latin names:
Κερμανικοῦ *Germanicus PLond.* 1168 (iii, 135-8).20,47 (A.D. 44:*BL* i, 282)
Κέτα *Geta PAmh.* 120.6 (A.D. 204); etc.

2) κ > γ:

γυρίου (for κυρίου) *PPrinc.* 141.1 (A.D. 23); *BGU* 975.12 (A.D. 45); etc.
τῇ γυρίᾳ *POxy.* 1761.2 (late 2nd/3rd cent.)
γαί (for καί) *PRyl.* 160c, i.8 (A.D. 32); *PCairMasp.* 328 viii.24, x.26, xi.27 (A.D. 521); *SB* 5599 A.5 (8th cent.)
γρατίστῃ (for κρατίστῃ) *POxy.* 55 = *WChr.* 196.12 (A.D. 283)
γαρπõ(ν) (for καρπῶν) *StudPal.* iii, 45.4 (6th cent.)
Cf. also in the transcription of Latin names and loanwords:
Γλαυδίου *Claudius OStrassb.* 68.3 (A.D. 41); *OTait* 474.4 (A.D. 41); sim. *POxy.* 267 = *MChr.* 281.38 (A.D. 36)
γανγέλου *cancellus POxy.* 1998.4 part. rest., 6, with κανγ- 9 (6th cent.)

Note. The γν- spelling predominates in γναφεύς and derivatives in Roman documents, κν- in Byzantine,[1] and γράστις is the normal form.[2] Initial κ- is normal in κυβερνήτης,[3] κράβαττος, and κνῆκος.

[1] Old Att. κναφ-, Late Att.-Ion.-Koine γναφ- (Schwyzer i, 414; *MS*, 74; Rüsch, 195). Ptol. papp. have γναφ- excl. (Mayser i², 1, 155).

[2] Att. κράστις, later γράστις, fluctuate in the Ptol. papp. (Mayser, *ibid.*).

[3] As excl. in the Ptol. papp. (Mayser i², 1, 144).

γναφέως *POxy*. 736.37 (ca. A.D. 1); sim. *PMich*. 257.5-6 (A.D. 30); *PLond*. 286 = *WChr*. 315.8,13 (A.D. 88); *PMerton* 70.8 (A.D. 159); *OMichael*. 84.2 (1st half 3rd cent.); *PFlor*. 78.66-70 (A.D. 330-40: *BL* iii, 56); *PHermRees* 84.14 (6th cent.); etc.

γναφεῖον *POxy*. 1488.9-10 (2nd cent.); *PLBat*. xiii, 18.22 (4th cent.); etc.

γναφῶσιν *PMich*. 501.11 (2nd cent.); sim. *POxy*. 1346 descr. (2nd cent.?)

ἄγναφος *PLond*. 193 V (ii, 245-7).22 (2nd cent.); sim. *PHamb*. 10.32 (2nd cent.); *StudPal*. xx, 41 V.6 (2nd cent.); *PMerton* 71.11,15 (A.D. 160-3); etc.

κναφέας *OTait* 1946.3 (1st cent.?); sim. *WO* 1487.3, cf. 5 (Rom.); *POxy*. 43 V = *WChr*. 474 i.7 (A.D. 295?); *PRossGeorg*. v, 61 B, R.14, etc. (4th cent.); *SB* 10258, i.7 (4th cent.); *POxy*. 2156.19 (late 4th/5th cent.); *PJand*. 43.8,13,32 (A.D. 525); *BGU* 315.7 (Byz.); etc.

κναφήτω *POxy*. 2156.18 (late 4th/5th cent.)

γρά(στεως) *OTait* 1779.2 (14 B.C.); 1689.4 (A.D. 165); etc.; (in full) *PThead*. 8.21 (A.D. 306)

γράστιν *POxy*. 1756.11 (1st cent.); *Archiv* v, p. 176, #27.3 abbrev. (A.D. 216); *PRyl*. 236.9-10 (A.D. 256)

κράσι (acc.) *PHamb*. 39 F i.4, with γρ- elsewhere (A.D. 179)

κυβερνήτης *PLond*. 256 a = *WChr*. 443.1 (A.D. 15); sim. *POxy*. 276.6-7 (A.D. 77); *PPrinc*. 26.7-8 (ca. A.D. 154); *PTebt*. 370.3 (2nd/early 3rd cent.); *PVindobWorp* 8.3 (A.D. 317-40); *OBrüss-Berl*. 66.3 (4th cent.); etc. κυβερνήσεως *PLond*. 1349 = *WChr*. 284.20 (A.D. 710); etc.

γυβερνήτης *PGrenf*. i, 49 = *WChr*. 248.21 (A.D. 220/1); cf. Lat. *guberno*

κράβακτος is the normal spelling (see above, p. 66)

γράβακτα *PCairMasp*. 6 V.46 (6th cent.)

κνήκου *PHamb*. 64.19 (A.D. 104); *PPhil*. 15.15 (A.D. 153/4); *PLBat*. vi, 47.16 (A.D. 195); etc.; sim. *POxy*. 2058.33 (6th cent.)

γνήκου *PMerton* 107.19 (2nd cent.); possibly also *PCairMasp*. 325 i V. 10; ii R.3, V.3 (A.D. 585+)

b. Medially before or after another consonant.

1) γ > κ:

ἔκραψεν (for ἔγραψεν) *PMed*. 5.24 (A.D. 8/9); *PRyl*. 161.31 (A.D. 71); sim. *PAmh*. 112.34 (A.D. 128); *BGU* 458.4 (A.D. 220); *PSI* 43.8 (5th cent.); *BGU* 371.36-37 (Arab.); etc.

cf. ἔκραψα *SB* 234.1, graffito (n.d.); *SB* 7011 = *PColt* 121.7 (6th cent.)

ἀρκυρίου (for ἀργυρίου) *PLond*. 1273 (iii, 174).2 (A.D. 29); *SB* 5110 = *PRyl*. 160d, ii.27 (A.D. 42); *BGU* 416.5 (A.D. 150); *StudPal*. xxii, 48.28 (A.D. 152); *BGU* 86 = *MChr*. 306.38 (A.D. 155); etc.

ἀνακνώσιος (for ἀναγνώσεως) *PMich*. 322a.43 (A.D. 46)

ἀρκοῦ (for ἀργοῦ) *PFlor*. 1 = *MChr*. 243.24 (A.D. 153)

ἐνκύς (for ἐγγύς) *BGU* 523.8,12 (n.d.)

πρᾶκμα (for πρᾶγμα) *PMichael*. 126.15 (A.D. 538)

2) κ > γ:[1]

ἐπιγρατῖ (for ἐπικρατεῖ) *PRyl.* 160c, i.15 (A.D. 32)
συνγεχοριγένε (for συγκεχωρηκέναι) *PMich.* 322a.40, sim. 41,42-43 (A.D. 46)
Αὐτογρά[τορος] (for Αὐτοκράτορος) *OTaitCamb.* 54.4 (A.D. 51); (in full) *WO* 1038.6 (A.D. 54); sim. *PWürzb.* 20.7 (Arab.); etc.
πράγτ(ωρ) (for πράκτωρ) *OTaitCamb.* 39.1 (A.D. 133)
ἀντιγνημίῳ (for ἀντικνημίῳ) *CPR* 78.6 (early 3rd cent.)
ὁλογλήροις (for ὁλοκλήροις) *PYale* 61.9 (ca. A.D. 208-10)
γίνοσγε (for γίνωσκε) *PLBat.* xiii, 19.1 (3rd cent.)
προσγυνῆσαι (for προσκυνῆσαι) *PLond.* 1244 (iii, 244).4 (4th cent.)
ἀγγάλαις (for ἀγκάλαις) *PAmh.* 150.25 (A.D. 592)

c. Intervocalically.

1) γ > κ:

ὁμολοκῶ (for ὁμολογῶ) *BGU* 189 = *MChr.* 226.4 (A.D. 7); *SB* 5109-10 = *PRyl.* 160d, i.1; ii.25-26 (A.D. 42); *PTebt.* 310.3 (A.D. 186); etc.
θυκατράσι (for θυγατράσι) *PMich.* 322a.38 (A.D. 46); sim. *PMich.* 282.1, so duplic. *PSI* 917.1 (1st cent.); *PMich.* 225.3365 (A.D. 173-4); *OTaitPetr.* 375.9,11 (n.d.); *PFouad* 82.12 (4th/5th cent.); etc.
cf. θυκάτηρ *SB* 1203.1; sim. 7123.2; mummy labels (n.d.)
ἐξακοκῆς (for ἐξαγωγῆς) *POxy.* 1440.3 (A.D. 120); sim. *BGU* 71.11 (A.D. 189)
ἠκώρασα (for ἠγόρασα) *PSarap.* 12.14 (A.D. 131); sim. *PStrassb.* 354.3 (2nd cent.)
στεκάζοντες (for στεγάζοντες) *OTait* 1728.4; 1731, ii.2 (2nd cent.); *OStrassb.* 701, ii.7,9, sim. 10 (2nd cent.)
ἠκουμένου (for ἡγουμένου) *PPetaus* 34.21 (A.D. 184); *POxy.* 55 = *WChr.* 196.9 C (A.D. 283)
ὀλίκην (for ὀλίγην) *BGU* 72.11-12: *BL* i, 15 (A.D. 191); sim. *POxy.* 1860.11 (6th/7th cent.)
μεκάλους (for μεγάλους) *BGU* 338.4 (2nd/3rd cent.); sim. *POxy.* 1684. 12-13 (late 4th cent.); *POxy.* 2036.5 (late 5th cent.)
ὑκία`ν´ (for ὑγίειαν) *SB* 8027.8 (2nd/3rd cent.)
cf. Νίκερος *Niger* *PMich.* 384.5 (A.D. 172-?)

2) κ > γ:

πεπραγένε (for πεπρακέναι) *PMich.* 250.2 (A.D. 18); 290.3 (ca. A.D. 37); sim. *PRyl.* 162.35 (A.D. 159); etc.
τόγου (for τόκου) *PPrinc.* 142.6, sim. 10-11 (ca. A.D. 23)
πρόγειται (for πρόκειται) *SB* 5108 = *PRyl.* 160.3 (A.D. 28/29); sim.

[1] The fluctuation between ἐκ- and ἐγ- in composition pertains to assimilation and is treated below, pp. 174-6.

BGU 153.29, etc. (A.D. 152); *PLBat.* v, v.38, with πρόκιται iii.46-47, same hand (A.D. 174); *PCairMasp.* 312.58 (A.D. 567); etc.
πατριγῆς, βασιλιγή (for πατρικῆς, βασιλική) *PMich.* 329-30.2,6 (A.D. 40)
πατριγῆς *PLond.* 154 (ii, 178-80).19 (A.D. 68)
δίγης (for δίκης) *PVindobWorp* 10.8 (A.D. 143/4); sim. *PPrinc.* 191.5 (5th cent.?); *StudPal.* iii, 237.2 (6th cent.)
ἀγούομεν (for ἀκούομεν) *PTebt.* 591 descr. (late 2nd/early 3rd cent.)
τεσεράγοντα (for τεσσαράκοντα) *StudPal.* iii, 321.4 (6th cent.)
καθολιγοῦ (for καθολικοῦ) *PLond.* 1708.237,262a (A.D. 567?)

d. In final position:

οὐγ (for οὐκ) ὀλίγης *SB* 7870.5 (A.D. 107/8)
οὐγ (for οὐκ) ἔρχομαι *PAntin.* 43.20, sim. 15 (late 3rd/4th cent.)

2. Dentals (most frequent).

a. Initially before both front and back vowels and ρ.

1) δ > τ:

τημοσίων (for δημοσίων) *StudPal.* xxii, 20.15 (A.D. 4); *PMich.* 329-30.9 (A.D. 40); *PStrassb.* 43.19-20, sim. 18 (A.D. 331); *PSI* 43.4 (5th cent.); sim. *PCairMasp.* 286.8 (A.D. 527/8); etc.
τούω (for δύο) *SB* 5109 = *PRyl.* 160d, i.2 (A.D. 42); sim. *PIFAO* i, 17.3 (A.D. 54); *SB* 9832.24 (2nd cent.)
τίκης (for δίκης) *SB* 5110 = *PRyl.* 160d, ii.21 (A.D. 42); *PAntin.* 42.28 (A.D. 542); *PHermRees* 32.30; 33.8 (6th cent.)
τώξις (for δόξης) *PAmh.* 130.2 (A.D. 70); sim. *PGron.* 19 A.12 (2nd cent.)
τιπλῇ (for διπλῇ) *SB* 8749.6 (ca. A.D. 123); *PWürzb.* 20.11 (Arab.)
τιακωσίας (for διακοσίας) *PAmh.* 111.25 (A.D. 132); sim. *PLips.* 14.15: *BL* i, 204 (2nd/3rd cent.)
τέτω(κα) (for δέδωκα) *PMich.* 527.24 (A.D. 186-8); sim. *PAberd.* 35.7,8 (A.D. 202/3)
τισσή (for δισσή) *POxy.* 1474.19,23, with δισσῆς 10 (A.D. 216)
τραχμάς (for δραχμάς) *POxy.* 1646.31 (A.D. 268/9)
ταπάνημα (for δαπάνημα) *PSI* 66.31 (5th cent.?)
τι', τιά (for διά) *StudPal.* xx, 275.1,3 (6th cent.)

2) τ > δ:

δόκους (for τόκους) *PPrinc.* 141.3 (A.D. 23)
διμήν (for τιμήν) *SB* 5108 = *PRyl.* 160.5 (A.D. 28/29); sim. *PGen.* 48 = *PAbinn.* 60.33 (A.D. 346); *PSI* 41.8 (4th cent.); *POxy.* 1973.8 (A.D. 420); *PAntin.* 42.26 (A.D. 542); etc.
δέσαρος (for τέσσαρας) *OStrassb.* 328.6 (A.D. 30); sim. *OOslo* 10.6 (A.D. 211); *WO* 33.4 (A.D. 84); *POxy.* 1948.5 (late 6th cent.); *StudPal.* iii, 659.4 (6th cent.); 685.1 (7th cent.); viii, 706.2; 802.4 (7th cent.); etc.

δραπέσης (for τραπέζης) *PBrem.* 68.11 (A.D. 99); sim. *POxy.* 2584.9, corr. 15 (A.D. 211); *CPR* 3.4 (mid 3rd cent.: *BL* i, 111); etc.
δαξόμεθα (for ταξόμεθα) *PYale* 68.7 (A.D. 204)
δάς (for τάς) *PLBat.* xi, 1 i.12 (A.D. 338); *PSI* 66.19,24 (5th cent.?); sim. *PLBat.* xiii, 16.21 (6th/7th cent.); *SB* 5597.2; 5599 A.5 (A.D. 766 & 734: *BL* v, 97)
δαφήν (for ταφήν) *PCairMasp.* 151-2.164 (A.D. 570)
cf. δρ̣ί̣τη (for τρίτη) *PColt* 56.16-17 (A.D. 687)

b. Medially before or after a consonant.

1) δ > τ.

a) After ν:

τήντε (for τήνδε) *PMich.* 254-5.1 (A.D. 30/31); *PMich.* 295.2 (1st cent.); *SB* 7031 = *PMich.* 186.20 (A.D. 72); etc.
άντρός (for ἀνδρός) *PRyl.* 160c, ii.14,33 (A.D. 32); *PMich.* 274-5.2 (A.D. 46/47); *SB* 8950 = *PSI* 1320.17 (A.D. 82-96); sim. *PRein.* 43.9-10 (A.D. 102); *BGU* 598.12 (A.D. 173/4); etc.
ἐντοτέρω (for ἐνδοτέρω) *PSarap.* 96.14: *TAPA* 98 (1967), 519-20 (A.D. 129)
κίντυνων (for κίνδυνον) *PTebt.* 304.15-16 (A.D. 167/8); sim. *BGU* 1027 xxvi = *WChr* 424 i.11,23 (late 4th cent.: *BL* i, 88)
ἐντεκάτης (for ἐνδεκάτης) *SB* 5273 = *StudPal.* xx, 128.17 (A.D. 487)
ἕντεκα (for ἕνδεκα) *StudPal.* viii, 798.3 (6th cent.)
cf. κοντούκτορσι *conductor* *PBeattyPanop.* 1.60,63? (A.D. 298)

b) In connection with other consonants:

ἑβτεμήκοντα (for ἑβδομήκοντα) *PMich.* 329-30.17 (A.D. 40); sim. *PRyl.* 715.4 (5th cent.)
ἑβτώμης (for ἑβδόμης) *StudPal.* viii, 811.2 (Byz.)
ὑτροφύλαξ (for ὑδροφύλαξ) *PMich.* 224.51,358,2777,3717, with ὑδρο- 1195,1774 (A.D. 172-3); 225.559,1512 (A.D. 173-4)
ὑτρακωγός (for ὑδραγωγός) *BGU* 71.11 (A.D. 189)
ἐξέτραν (for ἐξέδραν) *PLBat.* xvi, 8.20, sim. 30 (A.D. 561)

2) τ > δ.

a) After ν:

ὑπάρχονδα (for ὑπάρχοντα) *PRyl.* 160c, i.13 (A.D. 32)
πένδε (for πέντε) *BGU* 975.8 (A.D. 45); *StudPal.* viii, 800.4 (7th cent.)
ὕφανδρα (for ὕφαντρα) *PMich.* 201.12 (A.D. 99)
ἐνδάχιον (for ἐντάχιον) *BGU* 601.16: *BL* i, 55 (2nd cent.)
ἐνδές (for ἐντός) *PMich.* 224 R.1404 (A.D. 172-3)
ἐνδεῦθ(εν) (for ἐντεῦθεν) *PFay.* 94.24 (A.D. 222/35); in full *POxy.* 1275.20 (3rd cent.)
cf. also in the transcription of Latin names and loanwords:

κενδηνάρια *centenaria PBeattyPanop.* 1.165 (A.D. 298); sim. *PLBat.* xi, 1 i.12,19; ii.11 (twice), 22 (A.D. 338)
Φρόνδων *Fronto SB* 10215.7 (3rd/4th cent.)

b) In connection with other consonants:

μέδρ(ῳ) (for μέτρῳ) *PPrinc.* 54.56,57,62 in full (early 1st cent.)
Σεβασδός (for Σεβαστός) *SB* 9604 (13).5 (A.D. 37/38)
μηδρός (for μητρός) *SB* 5109 = *PRyl.* 160d, i.1 (twice) (A.D. 42); *StudPal.* vii, 9b.3 (n.d.); cf. *SB* 1250.2; 1486.3; mummy labels (n.d.)
ὀκδώ (for ὀκτώ) *OStrassb.* 282.3,6 (A.D. 107)
δυδριακοστοῦ (for δυ(ο)τριακοστοῦ) *PMich.* 557.7,12 (A.D. 116)
φολέδρω (for φορέτρου) *PTebt.* 363.6 (early 2nd cent.)
ὥσδε (for ὥστε) *PGrenf.* i, 58.11 (ca. A.D. 561)
cf. οὐεδρανός *veteranus PGen.* 48 = *PAbinn.* 60.34 (A.D. 346); *POxy.* 2194.7 (5th/6th cent.)

c. Intervocalically.

1) δ > τ:

εἰτέναι (for εἰδέναι) *PPrinc.* 141.4 (A.D. 23); *BGU* 854.5 (A.D. 44/45); sim. *SB* 8952 = *PSI* 1319.34,81 (A.D. 76); *POxy.* 728.34 (A.D. 142); *PLBat.* v, iv.27; v.40 (A.D. 174); *POxy.* 1130.30 (A.D. 484); etc.
ἀποτώσιν (for ἀποδώσειν) *PPrinc.* 142.9 (ca. A.D. 23); sim. *PMich.* 329-30.19 (A.D. 40); *BGU* 2044.17,21,22 (A.D. 46); *SB* 9264 = *PMil-Vogl.* 71.28-29 (A.D. 161-80); *PThead.* 11.12 (A.D. 302); etc.
εἴσοτος καὶ ἔκ̣ξοτος (for εἴσοδος καὶ ἔξοδος) *SB* 5108 = *PRyl.* 160.4 (A.D. 28/29); sim. *PMich.* 290.9 (ca. A.D. 37); *PMich.* 329-30.6 (A.D. 40); *PMich.* 304.6 (1st cent.); etc.
εὐτοκῖ (for εὐδοκεῖ) *PMich.* 329-30.10 (A.D. 40); sim. *PMich.* 322a.40 (A.D. 46); *PMich.* 288-9.2 (1st cent.)
μητέν (for μηδέν) *POxy.* 2958.15 (A.D. 99); *PAbinn.* 46.7 (A.D. 343); sim. *POxy.* 487 = *MChr.* 322.7 (A.D. 156)
δωτέκατον (for δωδέκατον) *PRyl.* 122.22 (A.D. 127); sim. *BGU* 1586. 10,14 part. rest. (A.D. 201/2); *StudPal.* iii, 217.6; 218.6; 222.6 (6th cent.)
Φιλατέλφου (for Φιλαδέλφου) *PPetaus* 61.6 (A.D. 185); sim. 95.2 (ca. A.D. 185)
ἀτελφοῦ *SB* 9441 = *PMed.* 84.4-5 (4th cent.)
cf. ἀτελφῇ *SB* 7813, inscr. (A.D. 58)
cf. also in the transcription of Latin names:
Κραυτίου *Claudius BGU* 713.1, sim. 27 (A.D. 41/42)
Γλαυτίου *PBaden* 107.7 (A.D. 59); etc.

2) τ > δ:

ἀπαιδουμένων (for ἀπαιτουμένων) *PMich.* 256.7 (A.D. 29-30); *PVindob-Worp.* 1.13 (A.D. 91-96); sim. *CPR* 33.1 (A.D. 215); *POxy.* 55 = *WChr.* 196.6 (A.D. 283)

γίδωνος (for γείτονες) *PMich.* 282.4 (1st cent.)
ἱεραδικοῦ (for ἱερατικοῦ) *OStrassb.* 298.4 (A.D. 117-38)
εἰδόδω[ν] (for εἰδότων) *PLond.* 168 (ii, 190-1).17 (A.D. 162); sim. *SB* 7175.24,48-49 part. rest. = *PMed.* 52 i.24; ii.24-25 (A.D. 303)
ἀλίφαδος (for ἀλείφατος) *PTebt.* 396.19 (A.D. 188); *PHarris* 83.15 (A.D. 212?)
δευδέρας (for δευτέρας) *PTebt.* 367.15 (A.D. 210)
χάριδος (for χάριτος) *PMeyer* 26.3 (early 3rd cent.)
ἐργάδου (for ἐργάτου) *PSI* 60.16, with ἐργάτην 19 (A.D. 595)
cf. also in the transcription of Latin loanwords:
βάδιλλος *batillus* *POxy.* 521.13 (2nd cent.)
πρωδήκτορι *protector* *POxy.* 43 R ii.7, sim. 20 (A.D. 295); etc.

Note. The older form ἐνώδιον, rare in comparison with ἐνώτιον, is found in *PRyl.* 124.30,39-40 (1st cent.); sim. *PMich.* 121 R II ii.8, etc. (A.D. 42); ἐνῳδίῳ *SB* 6951.24 (A.D. 138-61); cf. ένύδιν, etc., p. 294, and ἐνοίζι, p. 76.

3. Labials.

a. β > π.

1) After μ:

ἐμπῆναι (for ἐμβῆναι: *BL* v, 76) *POxy.* 295.6 (ca. A.D. 35)
γαμπρά (for γαμβρά) *PMich.* 224.3712, etc. (A.D. 172-3); 225.2969 (A.D. 173-4)
παρεμπολήν (for παρεμβολήν) *BGU* 814.14 (3rd cent.); sim. *SB* 5273 = *StudPal.* xx, 128.16,17 (2nd hand) (A.D. 487)
ἀναλαμπανομένου (for ἀναλαμβανομένου) *PStrassb.* 538.12, sim. 14 (after A.D. 281); *SB* 7168.6 (5th/6th cent.)

2) In other positions:

σεπάσμ(ιον) (for σεβάσμιον) *PSI* 40.18, with σεβαστόν 12, etc. (A.D. 129)
ἐπιπάλον (for ἐπιβάλλον) *SB* 9391 = *PMilVogl.* 159.10 (2nd cent.); sim. *PThead.* 18.14 (3rd/4th cent.)
cf. τοῦ πίου (for βίου) *SB* 8237.2; 8238.1-2, inscrr. (n.d.)
Τεπτύνει (for Τεβτύνει) *PTebt.* 311.7-8, sim. 14-15 (A.D. 134); *PTebt.* 292.5 abbrev. (A.D. 189/90); etc.

b. π > β.

1) After μ:

πέμβτης (for πέμπτης) *BGU* 912.41 (A.D. 33)
σὺμ βρονησίῳ (for προνησίῳ) *POxy.* 1199.17 (3rd cent.)
cf. λαμβρο(τάτῳ) (for λαμπροτάτῳ) *PColt* 26.18 (A.D. 570)

2) In other positions:

ἀβέχω (for ἀπέχω) *OTait* 651.2 (A.D. 13)

βόλιν (for πόλιν) *POxy.* 1070.36 (3rd cent.)
ἅβαξ (for ἅπαξ) *PLond.* 417 = *PAbinn.* 32.8,12 (ca. A.D. 346)
ῥωβάλλων (for ῥοπάλων) *PGen.* 49 = *PAbinn.* 57.19 (ca. A.D. 346)
μεγαλωβρεπέστατων (for μεγαλοπρεπέστατον) *SB* 5273 = *StudPal.* xx, 128.15 (A.D. 487)
βρό, Βέτρου (for πρό, Πέτρου) *PSI* 839.2-3,4 (6th cent.)
βαρέσχο[ν] (for παρέσχον) *PJand.* 17.7 (6th/7th cent.)
cf. βαστοφόλου (for παστοφόρου) *SB* 360.5, inscr. (ca. A.D. 1)

cf. especially in Latin loanwords:

βάτ̣ελλαι *patella* *POxy.* 741.18 (2nd cent.); sim. *POxy.* 2423 R iv.15 (2nd/3rd cent.); *POxy.* 1657.5 (late 3rd cent.); *PRyl.* 630-7.387 (A.D. 317-23); *WO* 1218.3 (Rom.); *PSI* 1447.4 (5th cent.); *POxy.* 1901.34,68 (6th cent.)

but πάτελλον *BGU* 781 vi.2 (1st cent.); sim. *SB* 9042.2 (mid-late 2nd cent.); *SB* 9158.5 (5th cent.); *POxy.* 2419.9,10 (6th cent.)

βρ̣έκωνι *praeco* *PRyl.* 644.9 (4th cent.); sim. *PFlor.* 87.21 (4th cent.)

but πρ̣εκόνων *PFlor.* 71.680 (4th cent.)

βρέκορσι *praecursor* *SB* 2254.1 (Byz.)

Note. The Latin name *Publius* (as personal name or emperor's name in dates) is transcribed as elsewhere in Greek[1] first Πόπλιος, corresponding to the old Latin by-form of this name *Poplius*, then Πούβλιος; a hybrid spelling Πούπλιος begins to appear in the second century A.D. and is most common in the third.

Πόπλιος (personal name): *PTebt.* 85.55 (113 B.C.?); *BGU* 1200.1 (2/1 B.C.); *PPrinc.* 14, iii.15 (ca. A.D. 23-40); *OTaitPetr.* 271.1 (A.D. 43/44); *POxy.* 249.11 (A.D. 80); *PLips.* 118.3 (A.D. 160/1); *PLond.* 1178 = *WChr.* 156.64 (A.D. 194); etc.

(emperor) *Geta*: *PAberd.* 35.3 (A.D. 202/3); *BGU* 45.24 (A.D. 203); *BGU* 382.4 (A.D. 206); *BGU* 216.3 (A.D. 208)

Πούβλιος (personal name): *SB* 5136.4 (A.D. 237); *POxy.* 1204.8,18 (A.D. 299)

(emperor) *Pertinax*: *BGU* 46 = *MChr.* 112.24 (A.D. 193); *BGU* 646 = *WChr.* 490.8,13,16 (A.D. 193); *OTheb.* 64.5 (A.D. 193); *Geta*: *BGU* 220.7 (A.D. 204); *PPrinc.* 48.3 (A.D. 206); *PYale* 61.20 (ca. A.D. 208-10); *BGU* 98.28 (A.D. 210/11); etc.

Πούπλιος (personal name): *SB* 6995.10 (A.D. 124); *PFlor.* 370.1 (A.D. 132); *PPhil.* 14.2 (A.D. 155/6); *POxy.* 1127.3,36 (A.D. 183); *PLond.* 1170 (iii, 92-103).715 (3rd cent.); *POxy.* 1416.29 (ca. A.D. 299); etc.

cf. Ποῦπλις *PFlor.* 71.756 (4th cent.)

(emperor) *Geta*: *BGU* 63.3 (A.D. 201); *BGU* 108 V.4 (A.D. 203/4);

[1] See Schweizer, 103, w. lit.; Eckinger, 62-63, 94-95.

PAmh. 120.5 (A.D. 204); *PFlor.* 62.12 (A.D. 204); *PHamb.* 13.3 (A.D. 210); etc.; *Valerian & Gallienus*: *POxy.* 1187.22,25 (A.D. 254); *PFlor.* 9.19,20 (A.D. 255); *POxy.* 1557.14,15 (A.D. 255); *PLips.* 3 i.15; ii.16 (A.D. 256); etc.; *Gallienus*: *POxy.* 1689.43 (A.D. 266); *POxy.* 1475.36 (A.D. 267); etc.

The interchange of voiced and voiceless stops appears concomitantly in the papyri with evidence for the shift of voiced stops to fricatives. The conflicting phenomena occur in the same phonetic conditions and sometimes in the same word (cf. in the examples above ὑίας and ὑκίαν for ὑγιεια-, ἀρυρικ[ή]ν and ἀρκυρίου for ἀργυρ-, ἔραψεν and ἔκραψεν for ἔγραψεν, θυάτηρ and θυκάτηρ for θυγάτηρ, δά and τι(ά) for διά, ζακοσίας and τιακοσίας for διακοσίας), but no writer shows both variants in identical conditions.

The identification of voiced and voiceless stops has no satisfactory explanation in terms of Greek phonology.[1] The original oppositions between these orders have remained in Modern Greek even though the voiced stops have uniformly shifted to voiced fricatives. This identification occurs in the papyri from Egypt through bilingual interference from the Egyptian language.[2] Parallel phenomena are found in the spelling of Greek loanwords in Coptic.[3]

The phonemic system of the Egyptian language spoken during the Roman and Byzantine periods had the following consonants corresponding to the Greek voiced and voiceless stops: /k t p kj tj β/.[4] In no dialect at any time during the period of the papyri is there any evidence for distinct phonemes /g d/. The Coptic letters ⲅ and ⲇ occur virtually only in Greek loanwords. The use of ⲅ (rarely ⲇ) in Coptic words after ⲛ suggests that at least the velar stop may have been voiced [g] as a positional variant (allophone) of the phoneme /k/.[5] The sound represented by Coptic ⲃ, however, occurs as a distinct phoneme, pronounced at this time as a voiced bilabial fricative /β/.[6] In Coptic it interchanges more frequently with ⲟⲩ /w/ (and with ϥ /f/) than with ⲡ /p/.[7]

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[1] It is found extensively only in Egypt (cf. Mayser i², 1, 143-7). Elsewhere, only a limited and partially conditioned interchange of voiced and voiceless stops is found in Att. and Delph. inscrr. (*MS*, 74-79; Rüsch, 187-8), in the Herc. papp. (Crönert, 81-85), and in Asia Minor and Rhod. inscrr. (Schweizer, 104, 106-7). Cf. Thumb, *Hell.*, 133-4; Dieterich, 84.

[2] See Introduction, pp. 46-48.

[3] See Crum (selected variant spellings at the beg. of the treatment of each letter); Kahle VIII, § 65A, 67, 68, 71, 111 (orthographic variants of each consonant); Worrell, 100 (dialectal and vulgaristic misspellings in 6th and 7th cent. Theban documents); Böhlig, 106-9; Wessely, *Lehnwörter*, 8; Hopfner, 7-8.

[4] Worrell, 84; Vergote, *Phonétique*, 11-17, 20-46.

[5] Vergote, *ibid.*, 103-4; *Gram.*, 10. The more widespread use of ⲅ than ⲇ in Coptic words may explain why δ and τ interchange more freq. in the papp. than γ and κ. Cf. also the Greek-Demotic correspondences δ = *nt*, γ = *ng*, ζ = *ns* (Hess, 127, 132-3).

[6] Worrell, 40, 84, 88; Vergote, *ibid.*, 11-17, 42-46.

[7] Cf. the more freq. interchange of β with ου above, pp. 68-69.

This contrast of the Egyptian and Greek phonemic systems for these consonants indicates that writers who did not have voiced stop phonemes in their speech failed in many instances to perceive and produce the Greek voiced-voiceless opposition in velar and dental stops. The symbols for the labial stops were not so frequently confused because Coptic had in opposition to /p/ a bilabial fricative /β/ corresponding to Greek β.

D. INTERCHANGE OF ASPIRATED AND VOICELESS STOPS

1. χ, ϑ, φ are frequently replaced by κ, τ, π after σ, before another aspirate, and before or after a liquid or nasal, with the converse occurring occasionally. This indicates that aspirated stops tended to lose their aspiration in these positions, as attested at least dialectally elsewhere in Greek.[1]

a. After σ.

1) Velars.

a) χ > κ:

ἀπεσκηκέναι (for ἀπεσχηκέναι) *PMich.* 344.7 (1st cent.); sim. *BGU* 908.29 (A.D. 101/2: *BL* i, 81); *BGU* 340.28: *BL* i, 39 (A.D. 148/9)
κατασκεϑῆναι (for κατασχεϑῆναι) *SB* 7404.73, sim. 74-75 = *PLBat.* vi, 24.107,108 (up to A.D. 124); sim. *PRyl.* 97.14 (A.D. 139); *PLeit.* 1.4-5 (ca. A.D. 160); *SB* 7676 = *PCairIsidor.* 81.23 (A.D. 297)
σκῶσιν (for σχῶσιν) *POxy.* 1068.20-21 (3rd cent.)
παρασκεῖν (for παρασχεῖν) *POxy.* 1866.5 (6th/7th cent.)
δισκειλίας (for δισχιλίας) *MChr.* 362.20,22-23 (A.D. 211)
εὐσκοληϑῆς (for εὐσχοληϑῆς) *BGU* 625 = *WChr.* 21.18-19 (early 3rd cent.)
ἔσκατα (for ἔσχατα) *PLond.* 1343.24 (A.D. 709)
cf. ἀ̣π̣ε̣σ̣κεκένε (for ἀπεσχηκέναι) *PDura* 26.31 (A.D. 227)

b) κ > χ:

γίνοσχαι (for γίνωσκε) *POslo* 162.3 (4th cent.)

[1] Loss of aspiration in dentals after /s/ is attested in Delph. inscrr. (Rüsch, 193-4). The shift of σϑ > στ characterized NWGr. at an early period (Lejeune, § 41; Buck, *GD*, § 85), and is considered by Kretschmer, *Entst.*, 13-14, as a NWGr. element of the Koine. Aspirated and voiceless stops interchange sporadically in the Herc. papp., incl. after /s/, /n/, and before and after /r/ (Crönert, 81-85). Loss of aspiration before and after nasals and before liquids is also found in ancient dialects (Lejeune, § 41; Buck, *GD*, § 66). An aspirate immediately preceding another aspirate probably always lost its aspiration and became the corresponding voiceless stop (Schwyzer i, 210-11; Lejeune, § 50; cf. Mayser i², 1, 150). For the loss of aspiration after /s/, see further Kapsomenos, "Ἔρευναι," 351-2; Dieterich, 100-1; Psaltes, 95-97.

2) Dentals.

a) ϑ > τ:

ἐνγυᾶσσται (for ἐγγυᾶσθαι) *POslo* 30.4 (20 B.C.)
κελευστείσῃ (for κελευσϑείσῃ) *PStrassb.* 205.9 (ca. A.D. 135)
μισταρίων (for μισϑαρίων) *PTebt.* 413.13 (2nd/3rd cent.)
συνλαβέσται (for συνλαβέσϑαι) *PPrinc.* 70.5-6 (2nd/3rd cent.)
γενέ`σ´τε (for γενέσϑαι) *PAlex.* 27.11-12 (2nd/3rd cent.); *POxy.* 1069. 3,11,25 (3rd cent.)
ἐρρῶσται (for ἐρρῶσϑαι) *PFay.* 130.20 (3rd cent.); sim. *POxy.* 1761.15 (late 2nd/3rd cent.); *POxy.* 1678.27; 121.27-28 (3rd cent.); *POxy.* 1489.10 (late 3rd cent.); *PApoll.* 44.2 (A.D. 703-15); etc.
ἀνερχέστο (for ἀνερχέσϑω) *PTebt.* 417.30 (3rd cent.); sim. *SB* 7247 = *PMich.* 214.29 (A.D. 296)
ἐνχιριστῖσαν (for ἐγχειρισϑεῖσαν) *PAmh.* 139 = *WChr.* 406.18 (A.D. 350); *POxy.* 2267.3 (A.D. 360); sim. *PFlor.* 39 = *WChr.* 405.6 (A.D. 396)
cf. δίξεστη (for δείξασϑαι) *PColt* 73.6 (A.D. 683?)

b) τ > ϑ:

μονόσϑηκον (for μονόστεγον) *PRyl.* 160c, i.4 (A.D. 32)
ἀνασϑήσεται (for ἀναστήσετε) *SB* 9843.8 (1st/early 2nd cent.)
προσϑ(ίμου) (for προστίμου) *PPetaus* 20.17,18 (A.D. 185)
συνοψισϑήν (for συνοψιστήν) *PBeattyPanop.* 1.169,185, corr. 50,177,184 (A.D. 298)
νεωσϑί (for νεωστί) *POxy.* 2767.14 (A.D. 323)
cf. ἀφείσϑασϑαι (for ἀφίστασϑαι) *PDura* 31.7,33 (A.D. 204)
κατεσϑάϑην (for κατεστάϑην) *PDura* 46.5 (early 3rd cent.)

3) Labials.

a) φ > π:

ἀσπαλίσαι (for ἀσφαλίσαι) *POxy.* 298.60 (1st cent.)
ἐσπράκιται (for ἐσφράγισται) *SB* 9642 (6).27 (2nd cent.)
εἰσπορά (for εἰσφορά) *PLond.* 1249 (iii, 227-8).6 (A.D. 346: *BL* i, 290)

b) π > φ:

ἐκσφουνγεύειν *expungere* *POxy.* 1204.19, sim. 6 (A.D. 299)

Note. σπυρίς and its derivatives are usually spelled σφ- as in the Ptolemaic papyri.[1] σφόγγος is attested, but σπ- is normal in this word.[2]

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[1] Mayser i², 1, 153. σφυρίς is also found in Hp. (v.l.) and in inscrr. from Delos (3rd cent. B.C.) and Syros (2nd cent. B.C.) (*LSJ*, s.v.). Cf. Dieterich, 100, n.

[2] σφόγγος is already attested in Att. (Rutherford, *Phryn.*, 113) and in a 4th cent. B.C. inscr. from Delos (*LSJ*, s.v.).

Spellings with σφ-:

σφυρίς *PRyl.* 127.34 (A.D. 29); *POxy.* 741.3 (2nd cent.); *PLond.* 190 (ii, 253-5).42 (2nd cent.: *BL* iii, 92); *POxy.* 2424.13,28, sim. 27, with σπυρίς 32, sim. 33,44 (2nd/3rd cent.); etc.

σφυριδάλλιον *PMich.* 476.8 (early 2nd cent.)

σφυρίδου *PRyl.* 382.3,4 (early 2nd cent.); sim. *PSI* 831.10 (4th cent: *ChrEg.* 45 [1970], 357)

σφυρίδιον *SB* 7999 = *PMed.* 74.4-5 (2nd cent.); *POxy.* 2596.5-6 (3rd cent.); *PSI Omaggio* 12.7 (3rd cent.); sim. *PVindobWorp* 24.10 (3rd/4th cent.?); *PSI* 1564.8 (4th cent.); *PVars.* 28.3 (6th cent.); etc.

σφυρίον *POxy.* 1658.6 (4th cent.); *SB* 5747.10, sim. 9 (n.d.)

σφόνγου *PMich.* 123 V ii.30 (A.D. 45-47)

Spellings with σπ-:

σπυρίδιν *SB* 7572.3 (1st half 2nd cent.)

σπυρίδιον *SB* 9025.19, etc. (2nd cent.)

σπυρίδια *PLBat.* ii, 8.16 (A.D. 332); sim. *StudPal.* viii, 1044.3 (6th/7th cent.)

σπυρίδα *PLBat.* ii, 9.13 (A.D. 331?)

σπυ(ρίδες) *PLond.* 1414.258, etc.; sim. 1434.275; 1515.6 (8th cent.)

σπόγγος *PRyl.* 627.184; sim. 629.2 (A.D. 317-23)

σπογγοκέφαλος *PLond.* 113 (11a) (i, 223-4).1 (6th/7th cent.); sim. *SB* 4668.6.7 (A.D. 678)

b. Before another aspirate.

1) Velars.

a) χ > κ:

ἀκθῆναι (for ἀχθῆναι) *PRyl.* 135.16; 138.26; 143.20; 144.23; 147.24 (A.D. 34-39); *BGU* 22.35 (A.D. 114); sim. *PMich.* 582 ii.4 (A.D. 49/50)

ἐκθύας (for ἰχθύας) *PMich.* 274-5.6 (A.D. 46/47)

πρακθησόμεθα (for πραχθησόμεθα) *SB* 7599.25 (A.D. 95); *CPR* 32.16 (A.D. 218)

παραδεκθήσεται (for παραδεχθήσεται) *PTebt.* 374 = *WChr.* 349.20 (A.D. 131)

ἐκθές (for ἐχθές) *PWürzb.* 8.4 (A.D. 158/9); *PTebt.* 591 descr. (late 2nd/early 3rd cent.); *BGU* 45.3: *BL* i, 11 (A.D. 203); *PCairIsidor.* 63.21 (A.D. 296+)

ἐπενεκθέντος (for ἐπενεχθέντος) *SB* 9339.12 (A.D. 178); sim. *PRyl.* 640.2 (4th cent.)

ἐκθρός (for ἐχθρός) *POxy.* 2729.40 (4th cent.); sim. *PMich.* 516.10-11 (late 3rd cent.); cf. *PMich.* 149.30, astrol. (1st cent.)

Note. Both aspirates sometimes change to voiceless stops:

συντακτείσῃ (for συνταχθείσῃ) *POxy.* 1470.13 (A.D. 336)
ὀπτίῃ (for ὀφθείῃ) *POxy.* 1101.22 (A.D. 367-70)
ἐ]νεκτῖσαν (for ἐνεχθεῖσαν) *POxy.* 2408.14,15 (A.D. 397)
cf. ἐγράφτι (for ἐγράφθῃ) *PColt* 57.22 (A.D. 689)

b) κ > χ:

ἐχθέσθαι (for ἐκθέσθαι) *POxy.* 899 = *WChr.* 361.4 (A.D. 200); *PSI* 872.6 (6th cent.); *PGrenf.* i, 60.50 (A.D. 581)
ἐχθαμβῶν (for ἐκθαμβῶν) *PGrenf.* i, 53 = *WChr.* 131.18 (4th cent.)

Note. ἔχθεσις appears more frequently than ἔκθεσις throughout the Roman and Byzantine periods.

Spellings with -χθ-:

ἐχθέσεως *POxy.* 272.18 (A.D. 66); *POxy.* 1519.1,15 (mid 3rd cent.); *POslo* 88.7 (late 4th cent.); etc.
ἐχθέσεων *PGiss.* 58, ii.11 (A.D. 116); *POxy.* 1917.2,120 (6th cent.)
ἐχθέσει *POxy.* 1435.17 (A.D. 147); sim. *PCairIsidor.* 11.49,52 (A.D. 312)
ἔχθεσις *PJand.* 32.1 (2nd cent.); *PCairIsidor.* 17.1 (A.D. 314); *PLond.* 249 = *PAbinn.* 75.1; *PLond.* 431 = *PAbinn.* 76.1 (ca. A.D. 346); *PGot.* 55.1 (7th cent.); etc.
ἔχθεσιν *PRossGeorg.* iii, 6.2,7 (4th cent.); *SB* 9498 = *PMed.* 86.4, corr. 6 (5th cent.); *POxy.* 136 = *WChr.* 383.24 (A.D. 583); *POxy.* 1147.1 (late 6th cent.)

Spellings with -κθ-:

ἔκθεσις *PSAAthen.* 41.1 (1st cent.); *StudPal.* viii, 1201.1 (6th cent.)
ἔκθεσιν *POxy.* 291.3 (A.D. 25-26)
ἐκθέσεως *PRyl.* 200.5 (1st hand), with ἐχθέσεως 12 (2nd hand) (A.D. 111-12); *PHamb.* 35.5 (ca. A.D. 160); *POxy.* 1517.15 (A.D. 272/8)
ἐ]κθέσει *PCairIsidor.* 16.45 (A.D. 314)

2) Labials (φ > π only):

ὀπθαλμόν (for ὀφθαλμόν) *PSI* 1028.5 (A.D. 15); *PMich.* 241.10,16 (A.D. 16)
πθόνους (for φθόνου) *PRyl.* 144.21 (A.D. 38)
πεμπθησομένους (for πεμφθησομένους) *BGU* 235 = *WChr.* 399.15 (ca. A.D. 165)

c. Before or after a liquid or nasal.

1) Velars.

a) χ > κ:

δρακμάς (for δραχμάς) *PLond.* 1273 (iii, 174).12 part. rest. (A.D. 29); 153 (ii, 318-19).3 (4th cent.)
κέκρηκα (for κέχρηκα) *POxy.* 299.5 (late 1st cent.)

ἀρκεφώδῳ (for ἀρχεφόδῳ) *PSI* 883.17 (A.D. 137)
κωμάρκων (for κωμάρχων) *BGU* 2080.3 (2nd cent.)
ἄκρεις (for ἄχρις) *PAlex.* 27.12 (2nd/3rd cent.)
τοπαρκείας (for τοπαρχίας) *PBeattyPanop.* 1.237, corr. elsewh. (A.D. 298)

b) κ > χ:

ἐξαχλουθούσης (for ἐξακολουθούσης) *PMich.* 276.13 (A.D. 47)
ἀνόχνως (for ἀνόκνως) *PCornell* 49.11 (1st cent.)
ἐχ[ρ]ήματος (for ἐκρήγματος) *PPetaus* 18.25 (A.D. 185)
τέχνον (for τέκνον) *BGU* 380.19-20 (3rd cent.)
ἀρ]χεῖσθαι (for ἀρκεῖσθαι) *POxy.* 1702.12-13 (A.D. 290)
μιχρόν (for μικρόν) *PMichael.* 39.19 (Byz.)

2) Dentals (θ > τ only):

ἀπελτῖν (for ἀπελθεῖν) *PTebt.* 575 descr. (2nd cent.); *POxy.* 1670.7 (3rd cent.); *PGen.* 56 = *PAbinn.* 37.14-15, sim. 18-19 (ca. A.D. 346); sim. *POxy.* 1494.3 (early 4th cent.); etc.
ἐρτῖν (for ἐλθεῖν) *PMich.* 518.6 (1st half 4th cent.); sim. *PRossGeorg.* iii, 8.17 (4th cent.)
διελτούσης (for διελθούσης) *PStrassb.* 222.3: *BL* v, 138 (2nd cent.)
ἀπελτοῦσα (for ἀπελθοῦσα) *BGU* 380.3-4 (3rd cent.)
Παρτικοῦ (for Παρθικοῦ) *BGU* 74.4 (A.D. 167); sim. *PTebt.* 304.23 (A.D. 167/8)
πλειντουργίου (for πλινθουργείου) *PPetaus* 20.9-10, corr. 15 (A.D. 185)
ξηραντῖσαν (for ξηρανθεῖσαν) *POxy.* 53.10 (A.D. 316)
ἄντρακος (for ἄνθρακος) *POxy.* 1430.12 (A.D. 324)
ὀρτόδοξος (for ὀρθόδοξος) *SB* 5174.2 (A.D. 512)

3) Labials (rarely).

a) φ > π:

ἀμπώτε(ραι) (for ἀμφότεραι) *PRyl.* 160b.6 (A.D. 37)

b) π > φ:

φροχίριν (for προχείριον) *PTebt.* 413.10, cf. 18,20 (2nd/3rd cent.)
ἀφλώματος (for ἀπλώματος) *SB* 5174.16 (A.D. 512)

Note. κόλπος appears in the spelling κόλφον *PMich.* 514.30 (3rd cent.) and κόλφοις *PCairIsidor.* 63.20, cf. 64.6 (after A.D. 296), which is found elsewhere in Greek and may have been the result of reverse influence of Latin *golfus* from earlier *golphus*.[1]

2. χ, θ, φ occasionally interchange unconditionally with κ, τ, π. This indicates the identification of aspirated stops with their corresponding voiceless

[1] Leumann-Hofmann i, 132; *PMich.* 514.30, n. ad loc. w. lit.

stops in the speech of individual writers. This interchange is found in initial position (regardless of the final sound of the preceding word), before front and back vowels and liquids, and intervocalically before or after the accent.

a. In initial position.

1) Velars.

a) χ > κ:
κω[ρίς] (for χωρίς) *SB* 10238.10 (A.D. 37)
κρι' (for χρεία) *BGU* 1682.7 (ca. A.D. 300)
κορταίας (for χορταίας) *POxy.* 2113.19 (A.D. 316)

b) κ > χ:
χορσέων (for κορσέων) *PMich.* 313.13 (A.D. 37)
χαταβένω (for καταβαίνω) *BGU* 380.17 (3rd cent.)
χώμαρχοι (for κώμαρχοι) *SB* 7621.47 (A.D. 310-24)
χράβακτων (for κράβακτον) *PGen.* 68.10 (A.D. 382)
χαθαρῶν (for καθαρῶν) *POxy.* 1656.19 (late 4th/5th cent.)

2) Dentals.

a) ϑ > τ:
τίας (for ϑείας) *PCairIsidor.* 41.7 (A.D. 303)
Τεαδελφίας (for Θεαδελφίας) *SB* 5356.18, corr. 4 (A.D. 311?)
τυγατρεί (for ϑυγατρί) *PStrassb.* 131 = *SB* 8013.18, corr. 16 (A.D. 363)

b) τ > ϑ:
ϑιμήν (for τιμήν) *SB* 4362.3 (A.D. 145); sim. *POxy.* 1482.11 (2nd cent.)
ϑεσσαρίῳ *tessararius PThead.* 32.14 (A.D. 308); sim. *PThead.* 33.11, etc. (A.D. 312); *PCairIsidor.* 54.4 A-C; 71.8; 73.2 (A.D. 314); *POxy.* 2232.5 (A.D. 316); etc.
ϑαρσικαρίῳ (for ταρσικαρίῳ) *POxy.* 1146.16 (early 4th cent.); sim. *StudPal.* viii, 707.1-2 (7th cent.)

3) Labials.

a) φ > π:
πάσιν (for φάσιν) *SB* 7572.16 (prob. 1st half 2nd cent.)
πόβον (for φόβον) *BGU* 380.21-22,25 (3rd cent.)
πασήλου (for φασήλου) *OMich.* 246.3 (A.D. 301); *OMich.* 247.4 (late 3rd/early 4th cent.); *PNYU* 18.5,9,17 (A.D. 312+); *PCairIsidor.* 74.7 (A.D. 315); *SB* 9085, i.15,19; ii.22 (6th/7th cent.); etc.

b) π > φ:
φενтακοσίας (for πεντακοσίας, usually after δραχμάς) *PMich.* 331.4 (A.D. 41); 340.105 (A.D. 45-46); *BGU* 350.22 (A.D. 98-117); *StudPal.*

xxii, 4 iii.15,20-21 (A.D. 127/8); *SB* 10571.13,29 (A.D. 194); *PHamb.* 14.14 (A.D. 209/10); *PGissBibl.* 22.14-15 (3rd cent.); etc.
φυρόχρωμον (for πυρόχρωμον) *PBaden* 19.5 (A.D. 110)
φόρφυρεν (for πόρφυρον) *PRyl.* 242.9 (3rd cent.)
cf. φουγίων *pugio* *BGU* 40.3 (2nd/3rd cent.: *BL* i, 11)
φουλβίν *pulvinus* *PGen.* 80.13 (prob. mid 4th cent.); sim. *POxy.* 1290.7 (5th cent.)

b. Intervocalically.

1) Velars.

a) χ > κ:

ἔκω (for ἔχω) *OTaitPetr.* 247.2 (ca. A.D. 14-37)
ἀναδεκόμενα (for ἀναδεχόμενα) *PCairPreis.* 38.14 (4th cent.)
οὐκί (for οὐχί) *PLBat.* xi, 28.4 (4th/5th cent.: *BL* v, 63)
δοκικῷ (for δοχικῷ) *PHermRees* 34.25 (7th cent.)

b) κ > χ:

ὕχου (for οἴκου) *PMich.* 274-5.9 (A.D. 46-47)
ἀράχω(ν) (for ἀράκων) *PMich.* 124 V, i.26 (A.D. 46-49)
ἀσυχοφαντήτους (for ἀσυκοφαντήτους) *POxy.* 2873.19 (A.D. 62); etc.
ὑποθήχην (for ὑποθήκην) *PBrem.* 68.29-30 (A.D. 99)
ἀντίδιχον (for ἀντίδικον) *PMich.* 425.6 (A.D. 198)
κεχοσκινευμένου (for κεκοσκινευμένου) *PLBat.* xi, 1 i.11 (A.D. 338)
εὐχαίρως (for εὐκαίρως) *PSI* 742.5 (5th/6th cent.); etc.

2) Dentals.

a) θ > τ:

ἐχώμετα (for ἐχώμεθα) *PMerton* 63.18, with -μεθα 24 (A.D. 57); sim. *SB* 9122.12-13 (1st cent.); *POxy.* 729.35 (A.D. 137); etc.
καταροῦ (for καθαροῦ) *PSI* 30.4 (A.D. 82)
ἀπεληλύτειν (for ἀπεληλύθειν) *SB* 7353 = *PMich.* 491.7-8 (2nd cent.)
κατώς (for καθώς) *PFay.* 93 = *WChr.* 317.20 (A.D. 161); *BGU* 1662.19 (A.D. 182); *PAlex.ined.* 209 (p. 43).6 (5th cent.)
ἐπερωτητίς (for ἐπερωτηθείς) *BGU* 1062 = *WChr.* 276.34 (A.D. 236/7); *POxy.* 84 = *WChr.* 197.18,24-25 (A.D. 316); *SB* 9603 c). 18 (A.D. 372); sim. *PLBat.* xi, 13.23 (A.D. 372); *BGU* 751.11 (Byz./Arab.)
πιταρχήσουσι (for πειθαρχήσουσι) *PBeattyPanop.* 1.211 (A.D. 298)
σπατίον (for σπαθίον) *POxy.* 1297.10 (4th cent.); sim. *POxy.* 2729.30, 35,38 (4th cent.)

b) τ > θ:

καθαχρηματίζιν (for καταχρηματίζειν) *POxy.* 2722.36 (A.D. 154)
μεθά (for μετά) *PSI* 893.12 (A.D. 315)
ἐπερωθηθής (for ἐπερωτηθείς) *SB* 5273 = *StudPal.* xx, 128.18 (A.D. 487)

3) Labials.

a) φ > π:

προπάσις (for προφάσεις) *PGron.* 19 A.15 (2nd cent.)
κεπαλέου (for κεφαλαίου) *POxy.* 2722.55,59 (A.D. 154)
ἀπογράπομε (= ἀπογράφομαι for -μεθα) *PLBat.* v, ix.23 part. rest.; xii.21; xiv.28 (A.D. 174); sim. *BGU* 71.19,20,21 (A.D. 189)
ἀρχέποδος (for ἀρχέφοδος) *PPetaus* 12.6 part. rest.; 48.3 (A.D. 185); *OMich.* 258.2 (late 3rd/early 4th cent.); sim. *BGU* 43.9-10 (2nd/3rd cent.: *BL* i, 11)
ὀρνιθοτρόπου (for ὀρνιθοτρόφου) *SB* 10270 (23).1-2 part. rest., 3-4 (A.D. 221-3)

Note. ῥάφανος is sporadically spelled ῥαπ-, as attested elsewhere in Greek:[1]

ῥαπάλων (for ῥαφάνων) *SB* 7169.12 (A.D. 477); sim. *PApoll.* 93 A.10 (A.D. 703-15)

b) π > φ:

ὡφηνίκ' (for ὁπηνίκα) ἄν *POslo* 30.7 (20 B.C.)
ἄφαντα (for ἅπαντα) *CPR* 223.28 (A.D. 117-38)
cf. σαφωνίου *(sapo)* *POxy.* 1924.4 (5th/6th cent.); *PVindobWorp* 11.8 (6th cent.); *PAntin.* 202.10 (6th/7th cent.)

Note 1. ὑπόσκνειφος is the only spelling attested: *BGU* 911.8 (A.D. 18); *PSI* 1057.6 (A.D. 32); *PSI* 907.21 (A.D. 42).

Note 2. The aspirated and voiceless stops fluctuate frequently in χιτών/κιθών and χύτρα/κύθρα and their derivatives. In view of the widespread interchange of aspirated and voiceless stops, the random variation in these words can hardly reflect ancient dialectal forms surviving locally at such a late date.

χιτών/κιθών.

Spellings with χιτ- (most frequent):

χιτῶνα *PRyl.* 151.14 (A.D. 40); *POxy.* 2971.27 (A.D. 66); *PGiss.* 30.5 (after A.D. 140); *PMerton* 113.17 (2nd cent.); *PTebt.* 423.34 (early 3rd cent.); etc.
χιτῶνος *POxy.* 267 = *MChr.* 281.7 (A.D. 36); *POxy.* 929.9 (late 2nd/3rd cent.); etc.
χιτώνια *SB* 7992 = *PSI* 1332.18 (2nd/3rd cent.); *POxy.* 109.13,27 (late 3rd/4th cent.); sim. *POxy.* 1273.13 (A.D. 260)

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[1] See Mayser i², 1, 145-6.

Spellings with κιθ- (frequent):

κιθῶνα *PMich.* 346a.8 (A.D. 13); *PTebt.* 331.12 (ca. A.D. 131); *PRyl.* 440.9 (3rd cent.); etc.

κιθῶναν *PGiss.* 77.6 (ca. A.D. 117); *PTebt.* 417.34 (3rd cent.)

κιθῶνος *PMich.* 123 V, xii, a.1, 2 (A.D. 45-47); *POxy.* 2149.6-7 (2nd/3rd cent.)

κιθώνιον *BGU* 843.12 part. rest. (1st/2nd cent.); *POxy.* 2149.20 (2nd/3rd cent.); *POxy.* 2282.12 (late 3rd cent.); etc.

κιθῶνιν *POxy.* 1489.2-3,8 (late 3rd cent.); *PSI* 900.7-8, with κιτῶνιν 13 (3rd/4th cent.); *PFlor.* 371.2-3 (4th cent.)

κιθωνίου *SB* 7357 = *PMich.* 206.7 (2nd cent.); *SB* 7250 = *PMich.* 218.11 (A.D. 296)

Spellings with κιτ- (occasional):

κιτών *SB* 7260 iv = *PMich.* 121 R III, xii.3 (A.D. 42); *POxy.* 113.8 (2nd cent.)

κιτῶνα *POxy.* 1269.30 (early 2nd cent.); *BGU* 22.16-17 (A.D. 114); *PFay.* 108.17, sim. 21 (ca. A.D. 171)

κιτώνιον *PTebt.* 421.5 (3rd cent.); 406.14,17 (ca. A.D. 266); sim. *POxy.* 2273.11 (late 3rd cent.); etc.

Spellings with χιθ- (rare):

χιθῶνα *BGU* 1666.13 (prob. 1st cent.); *BGU* 816.18 (3rd cent.)

χιθωνίῳ *OTait* 1949.6-7 (1st cent.?)

χιθῶνος *BGU* 1564.5 (A.D. 138)

χύτρα/κύθρα.

Spellings with κυθ- (usual):

κύθρας *OTaitPetr.* 227.4; 246.4; 250.7 (A.D. 26-29); *PPetaus* 33.3 (ca. A.D. 185); *SB* 9395.10 (6th/7th cent.); etc.

κύθρα *PAmh.* 125.5 (late 1st cent.); *SB* 9804.1 (mid 2nd cent.); *PSI* 794.5, etc. (3rd cent.?); *POxy.* 1923.11, etc. (5th/early 6th cent.); etc.

κύθραν *POxy.* 936.11 (3rd cent.); *SB* 7994 = *PSI* 1331.9,11-12 (3rd cent.); *PRyl.* 627.338 (A.D. 317-23); *POxy.* 155.4 (6th cent.)

κυθρόκαυλος (for -γαυλος) *BGU* 40.11 (2nd/3rd cent.: *BL* i, 11)

κυθρύδιν *OTait* 1948.6 (3rd cent.)

κυθρίς *POxy.* 1349 descr. (4th cent.)

κυθροπωλῶν *PLond.* 1028 (iii, 276-7).11 (7th cent.)

Spellings with χυτ- (rare):

χύτρ[ας] *SB* 5224.40 (n.d.)

χύτραν *PLBat.* iii, 16.15 (6th/7th cent.)

Spellings with χυθ- (rare):

χύθρας *PMich.* 619.19 (ca. A.D. 182); *SB* 9295.14 (6th cent.)

χύθραν *SB* 9085, ii.22; iii.30, with κύθραν i.20 (6th/7th cent.)

The unconditioned interchange of aspirated and voiceless stops is caused by bilingual interference.[1] Only in the Bohairic dialect of Coptic, spoken in the Delta area, were there aspirated stop phonemes. Even in this dialect the opposition between voiceless and aspirate occurred only in accented syllables, and the aspirates were lost in late Byzantine times.[2] In the other dialect orthographies, the letters ⲭ, ⲑ, ⲫ were used only in Greek loanwords or as monographs for consonant clusters of voiceless stop + aspirate resulting from prefixing the definite article to a word beginning with ϩ or from composition.[3] These symbols interchange in Coptic documents with the symbols for the voiceless stops, both in native Egyptian words and in Greek loanwords,[4] less frequently than voiced and voiceless stops, but roughly in proportion to the relative frequencies of these interchanges in the Greek papyri. The comparatively infrequent interchange of aspirated and voiceless stops in Greek loanwords in Coptic may be the result of the aspirates in loanwords being perceived as consonant clusters, suggested by such spellings as ϩⲁⲗⲁⲥⲥⲁ (for ⲑⲁⲗⲁⲥⲥⲁ without the definite article), where initial /t/ (ⲑ being a monograph for ⲧϩ = /t + h/) was mistaken for the feminine article ⲧ.[5]

Note. Fluctuation in the spelling of Egyptian month names may reflect variations in Coptic spelling as well as confusion of aspirates and voiceless stops.

Θώϑ:

Θωῦτ (cf. B ⲑⲱⲟⲩⲧ) *SB* 2078 (5 B.C.); *WO* 1050.3 (A.D. 91); etc; Θώτ (cf. S ⲑⲟⲟⲩⲧ, ⲑⲟⲟⲧ) *WO* 16.2 (A.D. 60); *PRein.* 134.6 (A.D. 119); *BGU* 842, ii.18, etc. (A.D. 187); etc.

Φαῶφι:

Παῶφι (cf. S ⲡⲁⲟⲡⲉ, ⲡⲁⲁⲡⲓ) *OMich.* 6.1 (2nd cent.)

Χοιάκ:

Χοιάχ (cf. S ⲭⲟⲓⲁϩⲕ, ⲭⲟⲓⲁⲕϩ, ⲭⲟⲓⲁⲭ) *SB* 4519.4 (A.D. 14); *PJand.* 26.21 (A.D. 98); *PStrassb.* 193.23 (A.D. 128); etc.

Φαμενώϑ:

Φαμενώτ (cf. S ⲡⲁⲣⲙ̅ϩⲟⲧⲡ̅, ⲡⲁⲣⲉⲙϩⲟⲧ, ⲫⲁⲙⲉⲛⲁⲧⲡ̅) *OTait* 1054.4 (A.D. 64); *PPrinc.* 185.9,17-18 (A.D. 162); *POxy.* 1517.2,17 (A.D. 272/8); etc.

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[1] Schweizer likewise explains the occasional interchange of aspirated and voiceless stops in Asia Minor inscrr. through interference from the indigenous languages (110(-11), Anm. 1).

[2] Vergote, *Phonétique*, 33-34.

[3] Worrell, 85; Crum, sub ⲭ, ⲑ, ⲫ; Steindorff, §7, 11.

[4] Kahle, VIII §72 (ⲕ > ⲭ), 117B (ⲭ > ⲕ), 111A (ⲧ > ⲑ), 97A (ⲡ > ⲫ), 116E (ⲫ > ⲡ); Worrell, 100 (ⲕ × ⲭ); Böhlig, 108-9; Crum, *ibid.* Similar confusion of corresp. symbols for dentals is already found increasingly freq. in Dem. inscrr., esp. in words wo. a traditional orthography (Vergote, *Phonétique*, 34).

[5] Steindorff, §143; cf. Blok, 52-53.

Φαρμοῦθι:

Φαρμοῦτι (cf. S ⲡⲁⲣⲙⲟⲩϯ, F ⲡⲁⲣⲙⲟⲩⲧⲓ) *OROM* 21.5 (A.D. 121); *PHamb.* 96.2, horoscope (A.D. 145); *PStrassb.* 395.4 (5th/6th cent.); etc.

Παρμ[ο]ῦ̣θι (cf. ⲡⲁⲣⲙⲟⲩⲧⲉ, B ⲫⲁⲣⲙⲟⲩⲑⲓ) *PRein.* 43.14-15 (A.D. 102)

Παχών:

Φαχών (no Coptic parallel) *OTaitPetr.* 260.8 (A.D. 41)

Παῦνι:

Φαοῖνι (no Coptic parallel) *PMich.* 379.1 (1st half 4th cent.)

Ἐπείφ:

Ἐφίπ (no Coptic parallel) *OTait.* 651.4 (A.D. 13); *PGrenf.* i, 48 = *WChr.* 416.19 (A.D. 191); *POxy.* 2585.17 (A.D. 315); etc.

Ἐφείπ *PFlor.* 82.6 (A.D. 82/83); *WO* 795.4; 796.5; 797.5 (A.D. 102); *PFlor.* 41.15 (A.D. 140); 23.20 (A.D. 145); etc.

Ἐπήπ (cf. SB ⲉⲡⲏⲡ) *SB* 7255.4, tombstone (A.D. 37); *OMich.* 243.1 (late 3rd/early 4th cent.)

Ἐπείπ (cf. ⲉⲡⲉⲓⲡ) *PGrenf.* ii, 44.16 (A.D. 101); *PMilVogl.* 23.22 (A.D. 108); *PLBat.* xi, 8.18 (A.D. 127); etc.

Ἐπίπ *OBrüss.-Berl.* 67.7 (A.D. 72); *PStrassb.* 506.3 (A.D. 131); *BGU* 662.2,3 (A.D. 189); etc.

Ἐφείφ (no Coptic parallel) *WO* 20.5 (A.D. 41-54); *WO* 1245.6 (A.D. 125); *PMilVogl.* 28.31, corr. 30 (A.D. 162/3); etc.

Ἐφί̣φ *OOslo* 6 (inside).1-2 (1st cent.)

3. There is little evidence for the interchange of aspirated and voiced stops.

a. Velars.

1) χ > γ:

λιγ(ανῷ) (for λιχανῷ) *SB* 7260 iv = *PMich.* 121 R III, xii.4 (A.D. 42)

τάγα (for τάχα) *PSI* 49.3 (6th cent.)

προσενεγ̓θέντα (*sic* for προσενεχθέντα) *PCairMasp.* 6 V.112 (6th cent.)

2) γ > χ:

ὑπόρυχμα (for ὑπόρυγμα) *PLond.* 245 = *PAbinn.* 45.11 (A.D. 343)

b. Dentals.

1) θ > δ:

μισδώσει (for μισθώσει) *PSarap.* 47 bis (p. 280).3 (A.D. 131)

Θώδ (for Θώθ) *SB* 10365.1 (3rd/4th cent.)

ἀριδμῷ (for ἀριθμῷ) *SB* 7175 = *PMed.* 52 i.20; ii.21 part. rest., with ἀριθμῷ 8 (A.D. 303)

δεῖα (for θεῖα) *PCairMasp.* 6 V.117 (6th cent.)

ὁμοδυμαδ̣όν (for ὁμοθυμαδόν) *PCairMasp.* 158.16 (A.D. 568)

2) δ > ϑ:

τῆσϑε (for τῆσδε) *PRyl.* 184.9 (A.D. 214)
ἐπιϑοῦνε (for ἐπιδοῦναι) *BGU* 984.10 (4th cent.)
ϑιδόσϑαι (for διδόσθαι) *PCairMasp.* 6 V.33, corr. 36, with τοϑέντα 39, etc. (6th cent.)
σιϑηρ(ουργοῦ) (for σιδηρουργοῦ) *OStrassb.* 290.2 (prob. 6th cent.)

Note. The spellings μηϑείς, οὐϑείς, etc., do not represent an actual interchange of δ and ϑ. Found in Attic and other dialects from 378 B.C. on, along with ὅϑ' (for ὅδε before a rough breathing) and οὐϑ' (for οὐδέ in the same position),[1] they represent the assimilation of /d/ before a rough breathing (the feminine is always οὐδεμία, etc.). These spellings diminish in frequency from Ptolemaic to Roman times,[2] and are rare after the second century A.D., with sporadic recurrences in Byzantine documents.

μηϑέν *PMich.* 345.26 (A.D. 7); *PMich.* 352.11 (A.D. 46); *PLond.* 181a (ii, 146).15 (A.D. 64); *PSI* 897.38,75 (A.D. 93); *BGU* 638.15 (A.D. 143); *POxy.* 2134.28 (ca. A.D. 170); *PSI* 95.8 (3rd cent.); *PBouriant* 19.22 (5th/6th cent.)
μηϑενί *PTebt.* 383 = *MChr.* 357.39 (A.D. 46); *PMich.* 323-5.21,24 (A.D. 47)
μηϑείς *POxy.* 497.13 (early 2nd cent.); *POxy.* 2194.10 (5th/6th cent.)
μηϑένα *PMon.* 9.82; 12.41 (A.D. 585/6); 13.55 (A.D. 594)
οὐϑέν *PLond.* 256 R a = *WChr.* 443.17 (A.D. 15); *PPrinc.* 141.3 (A.D. 23); *PMich.* 121 R II, iv.2 (A.D. 42); *PMerton* 12.6 (A.D. 58); *OTheb.* 131.8 part. rest. (1st/2nd cent.); *PMich.* 466.24 (A.D. 107); *POxy.* 530.22 (2nd cent.)
οὐϑενί *PMich.* 465.20 (A.D. 107)

Both spellings sometimes occur in the same document.

μηϑέν *PRyl.* 159.19, with μηδενί 21 (A.D. 31/32); *SB* 8034.33, with μηδέν 20,24 (A.D. 52); *PMich.* 326.52, with μηδέν 59 (twice) (1st cent.); *POxy.* 2349.16, with μηδενός 13 (A.D. 70); *PMilVogl.* 24.23,24, with μηδέν 10, etc. (A.D. 117)
οὐϑέν *POxy.* 237 vii.43, with μηδέν viii.37, etc. (A.D. 186)

Cf. also μηϑ' ὅλως (for μηδ' ὅλως) *POxy.* 68 = *MChr.* 228.28 (A.D. 131) and οὐϑαμίνων = οὐδαμίνων *PFlor.* 170.7 (A.D. 255).

c. Labials.

1) φ > β:

ἀμβόδου (for ἀμφόδου) *POxy.* 258 = *WChr.* 216.5,21: *BL* iv, 58, corr. 10 (A.D. 86/87?)
κόβινος (for κόφινος) *PTebt.* 405.8 (3rd cent.)
cf. ϑαβῆς (for ταφῆς) *SB* 5925.7, inscr. (n.d.)

[1] *MS*, 104-5, 258-9; Schweizer, 112-14; cf. Schwyzer i, 408.
[2] See Mayser's table of statistics i², 1, 149.

2) β > φ:

Τῦφι (for Τῦβι) *OTaitPetr.* 281.7 (A.D. 53)

Documents which show an identification of voiced and voiceless stops do not generally confuse the aspirates with the voiceless stops, except in those positions in which aspirates tend to lose their aspiration.[1] This indicates that the writers were able to perceive and produce some opposition between aspirated and voiced stops if not between voiced and voiceless stops.

E. ASPIRATED STOPS/FRICATIVES (φ χ ϑ)

1. There is little evidence for the shift of the aspirated stops /ph kh th/ to fricatives /f x ϑ/.[2]

a. An aspirate is sometimes omitted, apparently through scribal error or reflecting a plosive pronunciation, since the omission tends to occur in the same positions in which an aspirate tended to lose its aspiration and become identified with its corresponding voiceless stop.

1) χ omitted:

δραμῶν (for δραχμῶν) *CPR* 23 = *MChr.* 294.17 (prob. A.D. 138-61); *SB* 9649.20 (2nd cent.); sim. *PVars.* 10 iii.31: *BL* iv, 102, corr. elsewh. (A.D. 156); *BGU* 819.4 (A.D. 202/3); *SB* 9910.9 (A.D. 268/9)
ἀπέσαμεν (for ἀπέσχαμεν) *SB* 7677 = *PCairIsidor.* 108.6 (A.D. 276)
ἐνεϑέ(ντων) (for ἐνεχϑέντων) *POxy.* 1925.1 (7th cent.)

2) ϑ omitted:

ἐρρῶσαι (for ἐρρῶσϑαι) *POxy.* 1069.34 (3rd cent.)
ἐρίμη[μ]αι (for ἠρίϑμημαι) *POxy.* 84 = *WChr.* 197.22 (A.D. 316)

3) φ omitted:

διαπεμϑείς (for διαπεμφϑείς) *BGU* 2024.1 (A.D. 204); sim. *PGissBibl.* 22.15-16 (3rd cent.); *POxy.* 2018.9, etc. 8 times, corr. 3, etc. (6th cent.); cf. *PColt* 172.5 (6th/7th cent.)

b. Aspirates interchange rarely among themselves, probably through scribal error.

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[1] See above, pp. 86-90. Cf. esp. *PRyl.* 160-160d.

[2] For this shift, see Schwyzer i, 204-7. Schweizer, 109-15, accepts evidence for a fricative pronunciation of χ in Asia Minor by the 2nd cent. B.C. and of φ by ca. A.D. 150 (p. 111, Anm. 2). There is an indication of fricative φ in Attica in A.D. 120 (*MS*, 78). Correspondences between Dem. *ts* and Gr. ϑ may point to a fricative pronunciation of this aspirate before [i], as *psimitsi* = ψιμίϑιον (Hess, 131, n. 1) and *prtsitkue* = Παρϑικός (Hess, 129, n. 1).

1) χ × ϑ:

ϑέρ (for χείρ) *PMich.* 276.33 (A.D. 47)
ἔρχεσχε (for ἔρχεσϑε) *OStrassb.* 788.5 (prob. 2nd cent.)
ἐπιμερισχῖσαν (for ἐπιμερισϑεῖσαν) *PGrenf.* i, 48 = *WChr.* 416.10-11 (A.D. 191)

2) φ × ϑ:

Ἀνφεστίῳ (for Ἀνϑεστίῳ) *PMich.* 568-9.5 (A.D. 90?)
μισφώσεως (for μισϑώσεως) *PMich.* 199.19 (A.D. 126)
ἐνϑανίαν (for ἐμφανίαν) *SB* 9192.15 (ca. A.D. 324-5)
Φαῶϑι (for Φαῶφι) *POxy.* 2110.1 (A.D. 370)

c. Sporadic interchanges of aspirates with other consonants, if correctly read, are probably scribal errors without significance for phonology:

λινοϋψικόν (for λινοϋφικόν) *POxy.* 1438.12 (late 2nd cent.)
τρασμάς (for δραχμάς) *POslo* 41.27 (A.D. 331)
πατηϑέ(ντι) (for πατήσαντι) *POxy.* 2052.6 (ca. A.D. 579)

d. Transcriptions of Latin *f* normally by φ favor a fricative pronunciation of φ, but transcriptions cannot be accepted on the same level as orthographic variations as evidence for pronunciation, for the nearest equivalent is often used. φ was the symbol in the Greek alphabet most readily adopted to represent Latin *f*.[1] Conversely, Greek φ came to be transcribed by Latin *f*.[2]

1). *f* > φ:

φίσκου *fiscus* *SB* 8444.21 (A.D. 98-138); sim. *PLBat.* ii, 1.7 (after A.D. 87); *PAmh.* 77 = *WChr.* 277.6 (A.D. 139); etc.
φούνδαν *funda* *PHamb.* 10 betw. 33 & 34, 38-39 (2nd cent.); *PLBat.* i, 18.13 (3rd. cent.); sim. *PMich.* 478.47 (early 2nd cent.)
but ποῦνδαν *SB* 9834 b. 42 (early 4th cent.)
ὀφίκιον *officium* *PSI* 943.8 (2nd cent.); sim. *PSI* 281.51 (2nd cent.)
ὀφφικίῳ *PLips.* 57.22 (A.D. 261); sim. *PCairMasp.* 126.58 (A.D. 541)
ὀφφικιαλίων *officialis* *POxy.* 1646.3 (A.D. 268/9)
ὀφικιάλιοι *POxy.* 2228.38 (A.D. 285: *BL* v, 81); sim. *PThead.* 20 i.8 (4th cent.); *PLBat.* xi, 6.1 (late 4th/5th cent.: *BL* v, 61); etc.
but ὀπφίκιον *PMeyer* 20.14,49-50 (lst half 3rd cent.); etc.
βενεφικιάριος sim. *beneficiarius* *PAmh.* 80.12 (A.D. 139); *StudPal.* xxii, 55.1-2 (A.D. 167); *BGU* 241.22,35: *BL* i, 30-32 (A.D. 177); etc.

[1] Cf. Schweizer, 110.

[2] Early Lat. transcribed the Gr. aspirates by *c, t, p*, e.g., *Aciles, teatro, Pilemo*; conversely, Lat. *p* and *t* were at that time transcribed by Gr. φ and ϑ. From 146 B.C. on, inscrr. begin to show ϑ transcribed by *th*, e.g., *Corintho*, and sporadically by *f*, e.g., *Afenodorus*. φ is first transcribed by *f* in *Dafne* at Pompeii (Schwyzer i, 157-8, 204; Leumann-Hofmann i, 130-2). See further Eckinger, 96-97, 99.

φακιάλιον *faciale* *POxy.* 114.7 (2nd/3rd cent.); sim. *PTebt.* 406.18 (ca. A.D. 266); *PRyl.* 606.36 (late 3rd cent.); *PRossGeorg.* iii, 28.12 (A.D. 343/58); *PGen.* 80.5 (mid 4th cent.)

but πακιάλιον *SB* 7033.45 (A.D. 481); sim. *PCairMasp.* 6 V.66,86-87 (ca. A.D. 567)

φόλλ̣ις *follis* *PCairIsidor.* 126.8 (prob. A.D. 308/9); sim. *PGrenf.* ii, 87.33 (A.D. 602)

δηφήνσορος *defensor* *PHermRees* 19.4 (A.D. 392); sim. *PHarris* 135.8 (5th cent.); etc.

but φαινόλης sim. *paenula* passim, e.g., *PMich.* 201.10-11 (A.D. 99); *PGiss.* 10.21 (A.D. 118); *PHamb.* 10.19 (2nd cent.); *PLBat.* vi, 49b i.1 (prob. A.D. 205); etc.

2) φ > *f*:

egraf(e) = ἐγράφη *POxy.* 1982.27 (A.D. 497); *POxy.* 2237.24 (A.D. 498)
Foibammonos = Φοιβάμμων *BGU* 364 = *MChr.* 279.21 (A.D. 553)
Epifaniu = Ἐπιφάνιος *SB* 4802.7 (Byz.)

The meager evidence for the shift of aspirated stops to fricatives is countered by the abundant evidence for the maintenance of a plosive pronunciation found in the confusion of aspirated stops with voiceless stops.

2. Aspirates, especially χ, are occasionally strengthened by the insertion of the corresponding voiceless stop, and a voiceless stop + aspirate cluster is sometimes reduced to the aspirate alone. This likewise points to the retention of a plosive pronunciation of the aspirates and reflects the identification of voiceless and aspirated stops.

a. Velars.

1) χ > κχ:

προπροσενεκχθέντων (for -ενεχθέντων) *PSI* 904.4 = *PMich.* 341.3 (A.D. 47)

τέκχνη (for τέχνην) *StudPal.* xxii, 40.34 (A.D. 150)

δρακχμ̣ά̣ς (for δραχμάς) *PVindobWorp.* 9.10 (A.D. 158)

ἰκχθύ̣ο̣ν̣ (for ἰχθύων) *PLond.* 429 (ii, 314-15).15: *BL* i, 269 (ca. A.D. 350); sim. prob. *PGissBibl.* 12.5 (A.D. 87/88)

προστακχθέντε[ς] (for προσταχθέντες) *BGU* 1027 = *WChr.* 424 i.17 (late 4th cent: *BL* i, 88)

cf. ἐκχθρῶν (for ἐχθρῶν) *PPrinc.* 75.9, horoscope (A.D. 138-61)

2) κχ > χ.

a) In simples:

Βαχιάδ(ος) *SB* 7031 = *PMich.* 186.42, corr. 2,9 (A.D. 72); sim. *PMich.* 496.3 (2nd cent.); etc.

cf. Βαχχιάδος *PGron.* 2.1, corr. 6 (A.D. 219/20); etc.

b) In compounds:

ἐχῖται (for ἐκχεῖται) *PMich.* 263.10-11 (A.D. 35/36); sim. *PSI* 906.6 (A.D. 45/46)

ἐχ^{ω} (freq. abbrev. for ἐκχώρησις) *PMich.* 238.66, etc. (A.D. 46); sim. *PMich.* 123 R XVI.14; XIX.27,31 (A.D. 45-47); etc.

cf. also κ > κχ in ἔκχρηγμα (for ἔκρηγμα) *SB* 7174 = *PMich.* 233.18-19 (A.D. 24: *BL* v, 99).

b. Dentals (ϑ > τϑ):

κατϑώ[ς] (for καϑώς) *SB* 7515.442 (A.D. 155)

μεμιστϑῶσϑαι (for μεμισϑῶσϑαι) *SB* 9085 iii.10 (6th/7th cent.)

Doubling of an aspirate by prefixing the corresponding voiceless stop, as well as the doubling of the aspirate itself, is attested elsewhere in the Koine.[1] Mayser explained it as a graphic representation of the syllable boundary within the aspirate,[2] but most examples from later papyri show the doubling in a position in which the syllable boundary does not lie within the aspirate. Schwyzer thinks that the prefixed voiceless stop (or aspirate) represents the plosive, while the aspirate represents the fricative, of an affricate [kkh, tth, pph];[3] but the papyri generally show this doubling only in a position in which the aspiration could be lost, e.g., before another aspirate, or before a nasal. This partial doubling of an aspirate appears parallel to the ordinary doubling of the simple consonants which is so common.[4]

[1] Hauser, 58, Anm.; Schweizer, 111, 114-15; Mayser i², 1, 186.

[2] i, 168-9.

[3] Schwyzer i, 207; Schweizer, 115.

[4] See below, pp. 154-162.

II. LIQUIDS[1]

In the papyri there is a frequent interchange of λ and ρ. These letters, especially ρ, are also frequently omitted before or after a stop, and conversely ρ is sometimes inserted. Both λ and ρ sometimes interchange with symbols for other sounds, especially nasals.

These phenomena lead to the following conclusions about the pronunciation of liquids.

1. In the speech of many writers in the Roman and Byzantine periods, there was only one liquid phoneme /l/.

2. Many writers failed to pronounce a liquid before or after a stop consonant.

3. Some writers confused liquids and nasals in pronunciation.

A. INTERCHANGE OF LIQUIDS (λ ρ)

λ and ρ interchange frequently, not only in the vicinity of another liquid, where assimilation, dissimilation, or transposition are possible, but just as often in the absence of another liquid. These phenomena are found most frequently in the Fayum. (In the following list of examples, all references are to documents written in the Fayum unless otherwise noted or identical with the title of the series, e.g., Oxyrhynchus for *POxy.*)

1. Possible assimilation.

a. ρ > λ:

πλήλους (for πλήρους) *POslo* 32.27 (A.D. 1); *SB* 5108 = *PRyl.* 160.5 (A.D. 28/29); sim. *PRyl.* 160c, i.8,17 (A.D. 32)

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[1] Schwyzer i, 211-13, 308-12; Lejeune, esp. §122-7, 137-45; Buck, *GD*, §70-76; *MS*, 80-83; Hauser, 60; Rüsch, 199-201; Mayser i², 1, 159-62; Crönert, 75-80; *BDF*, § 32.2, 33; Psaltes, 75-76, 84, 97-99, 101-2, 103-4.

πλῆλης (for πλήρης) *OFay.* 7.7 (A.D. 4)
πλιλώσατε (for πληρώσατε) *PVars.* 28.3 (6th cent.)
λαύλας (for λαύρας) *POxy.* 242.12 (A.D. 77)

b. λ > ρ:

κρήρου (for κλήρου) *SB* 7373 = *POslo* 33.5-6, prob. 21 (A.D. 29)
κρῆρυ, πρήρος (for κλῆροι, πλήρους) *PMich.* 274-5.8,9 (A.D. 46/47)
κρηρονόμος, πρηροφοροῦσα *Archiv* v, pp. 382-3, #69 V.12 (1st/2nd cent.)
προπυρόν (for προπυλῶνος) *PMich.* 288.1 (1st cent.)
πρηρούσας (for πληρούσας) *CPR* 11.34 (A.D. 108)

cf. also in transcriptions of Latin names and loanwords:
Σατυρνίρου (for Σατορνίλου, common form for *Saturninus*[1]) *PRyl.* 135.10 (A.D. 34)
οὐηράρια *velarium* *POxy.* 1684.6-7, corr. 11? (late 4th cent.)

2. Possible dissimilation (found only in the direction of λ):

ἀλγυ(ρίου) (for ἀργυρίου) *OFay.* 7.5 (A.D. 4)
φόλετρα (for φόρετρα) *PIFAO* i, 1.19 (A.D. 27); *PAlex.* 11.4 (A.D. 98-138); sim. *PPhil.* 14.20 (A.D. 155/6); *PBouriant* 17.13 (A.D. 219/20); *POxy.* 1589.16-17,18 (early 4th cent.); *PLBat.* iii, 16.16 (6th/7th cent.); *PBaden* 95.227, etc. (Hermopolite Nome, 7th cent. or earlier: *BL* iii, 256); etc., frequently
θυλουρόν (for θυρουρόν = θυρωρόν[2]) *PRyl.* 136.6 (A.D. 34); sim. *PStrassb.* 24 = *PSarap.* 52.17, corr. 24 (Hermopolite Nome, A.D. 118); *SB* 9484.4-5 (2nd cent.); *SB* 9509 = *PMed.* 77.4,9 (3rd cent.); *SB* 9408 (2).124; 9409 (1).112; (3).33,80,81 (A.D. 250-60)
ἀλούρας (for ἀρούρας) *CPR* 1 = *StudPal.* xx, 1.34 (A.D. 83/84); *PPhil.* 14.27 (A.D. 155/6); *PRossGeorg.* iii, 1.10,20 (A.D. 270: *BL* iii, 156)
ἡμιαλούριον (for ἡμιαρουρίου) *PMich.* 263.9, sim. 27, with ἀρούρας 8,27 (A.D. 35/36); sim. *PMich.* 123 R xi.8; xv.12; xviii.33; xix.27 (A.D. 45-47); *CPR* 170.27 (A.D. 98-117); *BGU* 409.6 (A.D. 313)
ἄλοτρα (for ἄροτρα) *PMilVogl.* 70.4 (2nd cent.); etc.
φλουρ[ο]ῖς (for φρουροῖς) *PJand.* 153.15 (Hermopolite Nome, 4th cent.)
cf. πλετωρίου (for πραιτωρίου *praetorium*) *PPetaus* 48.2 (A.D. 185)

Note. 1. The Latin official designation *librarius* is transcribed λιβλάριος as frequently as λιβράριος:

λιβλαρίῳ *BGU* 423 = *WChr.* 480.29 (2nd cent.); sim. *POxy.* 43 R v.

[1] Cf. Eckinger, 111-12; Meinersmann, 96; and see below, p. 109.
[2] See below, p. 211.

16,19 (A.D. 295); *PFlor.* 71.605,723; 87.11 (Hermopolis Magna, 4th cent.)

λιβράριον *PMich.* 466.27,29 (A.D. 107); sim. *SB* 6971.5 (Nubia, A.D. 195)

Note 2. The Latin military term *tessararius* is usually transcribed with the first or rarely the second /r/ dissimilated to /l/ or with /ar/ omitted:

τεσσαλαρίῳ, θεσσαλαρίῳ[1] sim. *PRyl.* 206a.13 abbrev. (3rd cent.); *PThead.* 33.3, etc., corr. 39 (A.D. 312); *PCairIsidor.* 54.4 DE; 71.8; 73.2; 128.1,5 (A.D. 314); *POxy.* 2232.5 (A.D. 316); *POxy.* 1425.5 (A.D. 318); *PGot.* 6.7-8 (A.D. 322); *POxy.* 1430.4 (A.D. 324); *PSI* 1106.4; 1107.4 (Oxyrhynchite Nome, A.D. 336); etc.

τεσσαραλίῳ *POxy.* 43 R, ii.21, corr. iv.6 (A.D. 295)

θεσσαρίου *POxy.* 43 R, iv.3 (A.D. 295); *PCairIsidor.* 54.4 A-C (A.D. 314); sim. *PThead.* 32.14 (A.D. 308)

but τεσσαρᾶρις *OTaitPetr.* 279.1 (A.D. 52); *OTait* 2032.6 (Nubia, 2nd half 2nd cent.); sim. *WO* 1143.1 (Nubia, early 3rd cent.); *POslo* 119.10 (Oxyrhynchite Nome, A.D. 319); *SB* 6958.6 (Nubia, n.d.)

3. Transposition (found mainly in Latin names):

Αὐληρίου (for Αὐρηλίου *Aurelius*) *PFay.* 34.25 (A.D. 161); *PAlexGiss.* 9.6 (A.D. 172); *WO* 268.6 (Syene, A.D. 174); *PLips.* 117.4, corr. 7 (Oxyrhynchite Nome, A.D. 175/6: *BL* i, 215); *BGU* 1574.24 (A.D. 176/7); etc.

Κελεᾶρις (for Κερεᾶλις *Cerealis*) *POxy.* 1102.4 (ca. A.D. 146); *PRossGeorg.* ii, 20.5 (ca. A.D. 146); sim. *OPar.* 11 (p. 432).1 (Syene, A.D. 160); *Archiv* v, p. 178, #33.3 (Syene, n.d.)

Λιβελᾶρις (for Λιβερᾶλις *Liberalis*) *OMich.* 1038.4 (A.D. 233/64?)

πρήλης (for πλήρης) *POxy.* 1331 descr. (5th cent.)

Note. Latin *paenula* appears nearly as often with ν and λ transposed as in the original spelling.[2]

4. No possible assimilation, dissimilation, or transposition.

a. Intervocalically.

1) ρ > λ:

σπόλου (for σπόρου) *POslo* 32.13 (A.D. 1)

καθαλά (for καθαρά) *PRyl.* 166.22 (A.D. 26)

ἠγόλακα (for ἠγόρακα) *PRyl.* 160c, i.10 (A.D. 32); sim. *PRyl.* 160b.6 (A.D. 37); *BGU* 854.6: cf. *BL* v, 14 (A.D. 44/45)

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[1] See above, p. 91.

[2] See below, p. 154.

μελῶν δεσσάλ[ων], χυλός (for μερῶν τεσσάρων, χειρός) *SB* 5109-10 = *PRyl.* 160d, i.2; ii.28 (A.D. 42)

μελίτος, ἡμέλα[ς] (for μερίδος, ἡμέρας) *PRyl.* 160b.2,4 (A.D. 37)

μηλῶι (for μηρῶι) *CPR* 223.3 (A.D. 117-38); sim. *CPR* 6 = *StudPal.* xx, 47.26 (A.D. 238); *PThead.* 2.4 (A.D. 305)

παλλά (for παρά) *BGU* 2126 ii.4 (Oxyrhynchite Nome, 1st half 3rd cent.)

σπολίμης (for σπορίμης) *StudPal.* iii, 237.2 (6th cent.)

2) λ > ρ:

θέρης (for θέλης) *POxy.* 1291.9 (A.D. 30)

πυρõνος (for πυλῶνος) *PMich.* 295.4,5,6; sim. 298.4,5 (1st cent.)

ἐρεφάντινον (for ἐλεφάντινον) *PCornell* 29.3, corr. 4 (2nd cent.?)

ὅρους (for ὅλους) *PBerlZill.* 12.21 (3rd/4th cent.)

ναῦρον, καμήρον (for ναῦλον, καμήλων) *POxy.* 1871.6, with καμήλους 4 (late 5th cent.)

cf. πριγκιπᾶρις (for πριγκιπᾶλις *principalis*) *SB* 8088.5 (2nd cent.); sim. *BGU* 931.1 (Heracleopolis Magna, prob. 3rd/4th cent.)

b. In other positions.

1) ρ > λ:

καθάπελ (for καθάπερ) *PMich.* 310.16 (A.D. 26/27)

ἐπικλατῖ (for ἐπικρατεῖ) *PRyl.* 160c, i.6, with ἐπιγρατῖ 15 (A.D. 32)

ὑπέλ (for ὑπέρ) *SB* 5110 = *PRyl.* 160d, ii.34 (A.D. 42)

προγεγλαμένη (for προγεγραμμένῃ) *PMich.* 351.24, with ἐπιγέρμαι 33 (A.D. 44); sim. *PFlor.* 65.20 (Justinopolite Nome, A.D. 570/1?)

πλεσβυτῶ[ν] (for πρεσβυτῶν) *PStrassb.* 518.4-5 (ca. A.D. 300)

λαφανίνου (for ῥαφανίνου) *PGen.* 66 iii.2 = *PAbinn.* 66.50 (ca. A.D. 346)

ὀλφανούς (for ὀρφανούς) *SB* 9613.8 (Edfu, 6th cent.?)

πλάση (for πράσει) *SB* 8987.47 (Oxyrhynchus?, A.D. 644-5)

cf. τετάλτης (for τετάρτης) *SB* 10047 d).12, tombstone (Antinoopolis, Xtn.)

2) λ > ρ:

Θεαδερφῆας (for Θεαδελφείας) *POslo* 32.7 (A.D. 1)

ἀτερφῶν (for ἀδελφῶν) *PRyl.* 160c, i.7,16 (A.D. 32)

κατακρινῆ, ὀρκῆς (for κατακλινῆ, ὁλκῆς) *PRyl.* 124.26,34 (1st cent.)

ἐξερθῖν (for ἐξελθεῖν) *PMich.* 204.5-6, with ἐλθῖν 7 (A.D. 127); sim. *POxy,* 1069.6,31 (3rd cent.); *PMich.* 516.10 (late 3rd cent.); 518.6 (1st half 4th cent.); *PLond.* 239 = *PAbinn.* 31.17 (ca. A.D. 346); *POxy.* 1929.6 (late 4th/5th cent.); *PSAAthen.* 69.5 (5th cent.); *SB* 8092.5 (ca. A.D. 500); *POxy.* 1874.16 (6th cent.?); *POxy.* 2732.14, corr. 15 (6th cent?); *PHermRees* 49.4 (6th cent.)

cf. ἀνήρθατε *PGM* 7.26 (3rd cent.)

cf. ἐρπίς (for ἐλπίς) *POxy.* 1059 = *PGMXtn.* 6c.1 (5th/6th cent.)

Note 1. Latin *dalmatica* often appears as δερματική (so also in the derivative δερματίκι(ο)ν)[1] perhaps on the analogy of δέρμα, δερματικός:

δερματική *PTebt.* 405.10 (3rd cent.); sim. *PLond.* 247 = *PAbinn.* 81.4 (ca. A.D. 346); etc.
δερματίκιν *PTebt.* 413.8 (2nd/3rd cent.); sim. *POslo* 119.5,8,11 (A.D. 319); *PFlor.* 371.7 (4th cent.); cf. *SB* 1958.1, inscr. (3rd/4th cent.)
δερματικομαφόρτιν *POxy.* 114.5 (2nd/3rd cent.); sim. *PMichael.* 18 ii.4,5 (3rd cent.)
δαλματικαί *PHarris* 105.8 (2nd cent.); *PLBat.* iii, 15.12 (3rd cent.); sim. *BGU* 93.7 (2nd/3rd cent.); *StudPal.* xx, 31.16 (A.D. 230); etc.
δελματίκιν *POxy.* 1051.1,2 (3rd cent.); sim. *POxy.* 2273.12 (late 3rd cent.); *PStrassb.* 131 = *SB* 8013.7 (A.D. 363); *SB* 7033.38 (A.D. 481); etc.
δελματικομαφόρτην *POxy.* 1273.12,14-15,15-16 (A.D. 260)
δελμάτιον *POxy.* 1026.16, with δελματίκιον 10 (5th cent.)

Note 2. κλίβανος *oven*, and its derivatives are usually spelled κλ-, but Attic κρ- is attested in Byzantine papyri:

κλειβάνου *OTait* 2031.2 (2nd half 2nd cent.); sim. *PMon.* 11.20 (A.D. 586); etc., cf. *PColt* 23.4 (A.D. 566/7?)
κλιβανεύς *POxy.* 1142.10 (late 3rd cent.); sim. *PVars.* 28.1 (6th cent.)
κλιβανῖον *SB* 9114.7 (4th/5th cent.); sim. *PSI* 1122.22 (6th cent.); *PLond.* 1733.23 (A.D. 594)
κλιβανω(τός) *PCairMasp.* 143 R.9 (6th cent.)
cf. also κλιβαναρίων *StudPal.* xx, 135.4 (A.D. 511); *SB* 4753.2 (Byz.)
κριβανεῖς, μυλοκριβάνιον *POxy.* 1890.3,6 (1st hand), sim. 19 (3rd hand), with κλίβανοι, etc. 8-11 (1st hand) (A.D. 508); sim. *PPrinc.* 154.5 (A.D. 545)
κρίβανον *POxy.* 1842.7 (6th cent.)

This frequent interchange of λ and ρ indicates that there was only one liquid phoneme /l/ in the speech of many writers in the Roman and Byzantine periods. Although in the history of Greek the phonetic quality of the liquids varied considerably according to locality,[2] and in Modern Greek preconsonantal λ has

[1] The fluctuation between α and ε in this word is not significant for Gr. (cf. Lat. *Dalmatae/Delmatae*).

[2] Cf. palatalized [l] in Coan, etc., as in Chios and Epirus today; velarized [l] in Cret. and NWGr.; palatalized [r] in Cret. and Epid.; velarized [r] in NWGr. (Schwyzer i, 212-13; Lejeune, § 123; Buck, *GD*, § 71).

generally become ρ while dissimilation of ρ to λ is common,[1] nowhere outside of Egypt was there an unconditioned interchange of λ and ρ or the identification of the sounds represented by these two symbols. But in the Egyptian sound systems, the Fayumic dialect had only one liquid phoneme /l/, with which the /r/ of other dialects merged.[2] There is also evidence from Coptic documents of a fluctuation between ⲗ and ⲣ in other dialect areas.[3] In the Greek papyri, most of the interchanges of λ and ρ are found in documents from the Fayum, especially in those showing other evidence of bilingual interference, e.g., *PRyl.* 160-160d, Greek-Demotic contracts from Soknopaiou Nesos.

B. OMISSION OF LIQUIDS

The symbols for liquids, especially ρ, are also occasionally omitted before or after another consonant, usually a stop. Conversely, ρ is sometimes inserted in the same positions.

1. Omission of λ:

Θεαδεφεία[ς] (for Θεαδελφείας) *SB* 7376.4 (A.D. 3); sim. *POslo* 37.7, corr. 5 (A.D. 295)
ἀδεφός (for ἀδελφός) *PMich.* 344.5, corr. 4 (1st cent.); *PMich.* 224.636,2147 abbrev. (A.D. 172-3); sim. *BGU* 827.27, corr. 1-2 (n.d.)
ἀνεθεῖṿ (for ἀνελθεῖν) *PRyl.* 74.3 (A.D. 133-5); sim. *SB* 7572.16-17 (2nd cent.); 6262.10, corr. 9 (3rd cent.); 9194.10 (late 3rd cent.); etc.
ὀφθαμόν (for ὀφθαλμόν) *PRyl.* 153.46 (A.D. 138-61)
ἐπαντεῖν (for ἐπαντλεῖν) *POxy.* 1675.11 (3rd cent.)
βεβαμμένου (for βεβλαμμένου) *POxy.* 2993.12 (A.D. 323?)

2. Omission of ρ.

a. After a stop:

ἐλαφῶς (for ἐλαφρῶς) *SB* 10240.8 (A.D. 41)
φέατος, παραχῆμα, μέχι, χόνον (for φρέατος, παραχρῆμα, μέχρι, χρόνον) *PMich.* 274-5.5,9,10,12 (A.D. 46/47)
τ̣ισ̣χι̣[λ]ίαις (for τρισχιλίαις) *POxy.* 2843.21 (A.D. 86); sim. *PSI* 66.21 (5th cent.?)

[1] Thumb, *Handbook*, § 31; Jannaris, § 187. Cf. ἀδερφός, ἦρθα, ἐρπίδα, with ἀλέτρι (from ἄροτρον). The change of λ > ρ is found esp. before labials already in 2nd cent. A.D. Delph. Δερφοί (Rüsch, 201), Lyd. Εὐέρπιστος (Hauser, 60, n. 2), and 3rd cent. A.D. Att. ἐρπίς, ἀδερφοί (Schwyzer i, 213).

[2] Worrell, 68, 84; Vergote, *Phonétique*, 109-10.

[3] Crum, sub ⲗ, ⲣ; Worrell, 101-2; Kahle, VIII, § 75, 100; Böhlig, 109-10; Wessely, *Lehnwörter*, 8.

cf. τιάκων, τιάκον[τα] (for τριάκοντα) *PColt* 58.13,15 (late 7th cent.)
ἐσφαγεῖσθαι (for ἐσφραγεῖσθαι) *PLBat.* vi, 15.123 (ca. A.D. 114); sim. *PTebt.* 311.16 (A.D. 134); *BGU* 86 = *MChr.* 306.44 (A.D. 155)
γέγαπται (for γέγραπται) *PLBat.* vi, 22.16 (A.D. 122); sim. *SB* 9353.14 (A.D. 140); *SB* 10279.6 (4th cent.)
Ἀλεξανδεύς (for Ἀλεξανδρεύς) *BGU* 2058, ii.7 (2nd cent.); sim. *SB* 8032 = *PRyl.* 599.20 (A.D. 226)
μητός (for μητρός) *PHamb.* 101 descr. 2 (A.D. 218-22); cf. *SB* 10382.3, mummy label (Rom.)
δαχμάς (for δραχμάς) *POxy.* 1646.12-13 (A.D. 268/9)
στατιώτας (for στρατιώτας) *PRossGeorg.* iii, 1.5 (A.D. 270: *BL* iii, 156)
ἐπιστέφ`ε´ια (for ἐπιστρέφεια) *PLBat.* xvii, 17 = *SB* 10287.5 (A.D. 504)

b. Before a stop or nasal:

ἐσπαμένας (for ἐσπαρμένας) *POxy.* 1685 = *PMerton* 17.19 (A.D. 158)
ὑπουγίᾳ (for ὑπουργίᾳ) *PTebt.* 402.40 (A.D. 172); sim. *SB* 1975 (5th cent.)
τοπαχείᾳ (for τοπαρχίᾳ) *PLBat.* xiii, 17.3 (mid 3rd cent.)
ἠκέσθησαν (for ἠρκέσθησαν) *POxy.* 1638.21, corr. 7 (A.D. 282)
κώμαχοι (for κώμαρχοι) *SB* 8989 = *PCairIsidor.* 57.24-25 (A.D. 315)
ἀτοκοπῖον (for ἀρτοκοπεῖον) *PRein.* 108.12 (6th cent.)
λειτουγίας (for λειτουργίας) *PCairMasp.* 151.192 (A.D. 570)
ματυρῶ (for μαρτυρῶ) *SB* 9402.23 (6th/7th cent.)

3. Insertion of ρ:

φρέατρος (for φρέατος) *POxy.* 1105.10 (A.D. 81-96)
σπρόρου (for σπόρου) *PLBat.* vi, 28.7, corr. 15 (A.D. 133)
καθάρπερ (for καθάπερ) *SB* 7466.19-20 (A.D. 147)
γραφρούσης (for γραφούσης) *PGiss.* 29.22 (A.D. 150)
ποσάρκεις (for ποσάκις) *POxy.* 528.24 (2nd cent.)
φλυραρήσω (for φλυαρήσω) *SB* 2266.12 (4th cent.)

λ and ρ are usually omitted in the same position in which λ tends to be replaced by ρ and sometimes in words which have preserved the ρ in Modern Greek.[1] The frequent omission of λ and ρ is unparalleled outside of Egypt. The liquids are ordinarily stable in Greek before and after a stop.[2] In Coptic, there is no evidence for the omission of ⲗ, and ⲣ is omitted only sporadically.[3]

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[1] E.g., ἀδερφός, ἐρθεῖν; see above, p. 105. In the Ptol. papp., λ and ρ are sts. om., mainly after a stop (Mayser i², 1, 159-60).

[2] Lejeune, § 138.

[3] Kahle, VIII, § 98; Crum, sub ⲣ.

C. INTERCHANGE OF LIQUIDS AND NASALS

1. Nasal > liquid:

ῥύλη (for ῥύμη) *SB* 8950 = *PSI* 1320.21 (A.D. 82-96)
ἀποδημύλη (for ἀποδημίαν) *PRyl.* 153.12 (A.D. 138-61)
ταλείου (for ταμείου) *BGU* 2126, i.4 (1st half 3rd cent.)
γερή(ματος) (for γενήματος) *SB* 9235.1 (A.D. 251)
ἥρπερ (for ἥνπερ) *POxy.* 1702.15 (A.D. 290)
ἐρενήκοντα (for ἐνενήκοντα) *POxy.* 1573.4 (late 3rd cent.); sim. *POxy.* 43 R, v.15 (A.D. 295)
ἀπάρτων, ἀρθρώπων (for ἀπάντων, ἀνθρώπων) *PLBat.* xiii, 18.30,34 (4th cent.)
ῥαπάλων (for ῥαφάνων) *SB* 7167.12 (A.D. 477)
ληλών (for ληνόν) *PMich.* 608.9 (6th cent.); *PFlor.* 65.8 (A.D. 570/1?)

Note 1. κλάνιον, *bracelet*, is usually found with λ (or ρ) for the ν of the stem:

κλαλίων *POxy.* 796 descr. (A.D. 98-117); *POxy.* 1272.9,11 (A.D. 144); sim. *PMich.* 343.4 (A.D. 54/55); *SB* 9834 b.53 (early 4th cent.)
κλάλια *PStrassb.* 225.14 (2nd half 2nd cent.); *POxy.* 114.11 (2nd/3rd cent.)
κλάλιος (? - F.T.G.) *StudPal.* xx, 46 R. 2,8: *BL* ii, 2,159 (2nd/3rd cent.)
κλαρίον *SB* 7260 ii, b = *PMich.* 121 R II ii.8 (A.D. 42); sim. *PStrassb.* 216.11 (A.D. 126/7)
κλανῶν (for κλανίων) *PHamb.* 10.46 (2nd cent.); *POslo* 46.9 (3rd cent.)

Readings are uncertain in other occurrences of this word.

Note 2. The Latin name *Saturninus* occurs in the spelling(s) Σατορν(ε)ῖλος more than twice as often as Σατυρν(ε)ῖνος.[1]

2. Liquid > nasal:

σήμενον (for σήμερον) *PMich.* 617.8 (A.D. 145/6)
μυμαῖων (for μυλαῖον) *PLond.* 335 = *WChr.* 323.8, corr. 14,22 (A.D. 166/7 or 198/9)
κυνίων (for κυρίων) *PHamb.* 39, GG.5 (A.D. 179)
ἀνχιιερατεύσαντος (for ἀρχιερατεύσαντος) *PPrinc.* 149.3 (A.D. 176-80)

cf. also in Latin loanwords:

νουμενάρια (appar. for λουμενάρια *luminare*) *PGot.* 7.5 (mid 3rd cent.: *BL* v, 36)
ἀκομεντανησίου (for ἀκομενταρησίου *a commentariis*) *PHarris* 94.7-8 (4th cent.); sim. *SB* 2253.12 (Byz.)

[1] See the references in Preisigke, *NB*, and Foraboschi, *Onomasticon*.

The interchange of liquids and nasals is paralleled only to a very limited degree elsewhere in Greek.[1] A change of ⲗ/ⲣ to ⲛ is attested sporadically in Greek loanwords in Coptic.[2]

Note. A sporadic interchange of λ/ρ and δ through assimilation or metathesis is also found.

Κλαυλίου (for Κλαυδίου) *PHamb.* 11.6 (A.D. 202)
φικοπηλάτου (for φικοπηδάλου) *PLBat.* xi 1, i.4 (A.D. 338)

An unconditioned interchange is found in κύδιε, εὖδον, παδά (for κύριε, εὗρον, παρά) *POxy.* 2986.1,17; 3,{4}; 4, with other ρ's corr. (2nd/3rd cent.).

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[1] Several exx. of λ > ν before ϑ/τ appear in WGr. and rcad.A (Buck, *GD*, § 72) and in Delph. inscrr. (Rüsch, 201).

[2] Worrell, 101; Kahle, VIII, § 74D, 101.

III. NASALS[1]

In the papyri, final -ν is very frequently omitted and frequently added. Movable -ν is used irregularly. Medial nasals are also very frequently omitted and occasionally inserted, especially before stops. In addition, the symbols for nasals are sometimes confused.

For assimilation of nasals in composition and word-junction (sandhi), see below, pp. 165-172.

These phenomena, combined with the evidence for the assimilation of nasals below, lead to the following conclusions for the pronunciation of nasals.

1. Final nasals were dropped in the speech of many individual writers, regardless of the nature of the following sound.

2. Medial nasals were frequently dropped or assimilated completely to a following stop or nasal.

A. OMISSION AND ADDITION OF FINAL NASAL

1. Omission of -ν.

a. *In pausa*:

τὴν ... συνήθεα (for συνήθειαν) *PMich.* 252.5 (A.D. 26-27)
δέδωκεν ... δεξιά (for δεξιάν) *PHamb.* 87.8-9 (early 2nd cent.)
τὸν γεοῦχῳ (for γεοῦχον) *PStrassb.* 126 = *PSarap.* 41.12 (A.D. 129)
ἐροτῶ σε οὖ (for ἐρωτῶ ... οὖν), κύριε *PWürzb.* 21 A.18 (2nd cent.)
ἠσθένου (for ἠσθένουν) *PLBat.* xiii, 19.2, sim. 7 (3rd cent.)

b. Before a word beginning with a stop:

τὴ (for τὴν) γῆν *POslo* 32.14 (A.D. 1)
τὴ τιμήν (for τὴν τιμήν) *OFay.* 7.2 (A.D. 4); *CPR* 198.8 (A.D. 139)

[1] Schwyzer i, 213-16; Lejeune, § 128, 132, 137-45; Buck, *GD*, § 69, 77-78; *MS*, 84-85, 113-14; Schweizer, 121-2, 135-7; Nachmanson, 81-82 (cf. 18-19); Hauser, 60-62; Rüsch, 201-5, 273-80; Mayser i², 1, 163-73, 210-14; Crönert, 64-75, 137-41; *BDF*, § 11.2, 19, 20; Psaltes, 75-76, 78-83, 85, 87, 89, 102-3.

τὴ θύρα (for τὴν θύραν) *POxy.* 2778.11 (2nd/3rd cent.)
τὴ χάριν (for τὴν χάριν) *POxy.* 1071.4 (5th cent.); etc.
οὖ (for οὖν) πώλησον *PSarap.* 83a.12, corr. 14 (early 2nd cent.)
οὖ (for οὖν) καί *PMich.* 508.4 (2nd/3rd cent.)
σὺ (for σὺν) τοῖς *POxy.* 1670.26 (3rd cent.)
ὦ γεωργῖς (for ὧν γεωργεῖς) *POxy.* 1646.28-29 (A.D. 268/9)
ἐὰ (for ἐὰν) τό *POxy.* 2133.26 (late 3rd cent.)
συνήθεια (for συνήθειαν) ποιήσει *PLond.* 418 = *PAbinn.* 7.20 (ca. A.D. 346)
δύο μερῶ (for μερῶν) τοῦ *PSI* 774.11 (5th cent.)
ταύτη (for ταύτην) τὴν ὁμολογίαν *PCairMasp.* 1.43 (A.D. 514)
σήμερο (for σήμερον) καί *SB* 9462.18 (6th/7th cent.)

c. Before a word beginning with a liquid, nasal, or sibilant:

σὺ (for σὺν) σπέρμασι *PMich.* 348.17 (A.D. 27)
ἐ μηνεί (for ἐν μηνί) *BGU* 910 ii. 39-40 (A.D. 71); sim. *BGU* 43.5, corr. 11 (2nd/3rd cent.: *BL* i, 11); *POxy.* 1414.26 (A.D. 270-5); etc.
ἄλλω (for ἄλλων) νομῶν *PHarris* 62.4 (A.D. 151)
τῶν ὑπαρχόντω (for ὑπαρχόντων) σου *POslo* 34.3 (A.D. 188/9)
ἐὰ (for ἐὰν) λάβητε *PFay.* 127.14-15 (2nd/3rd cent.)
ἐὰ (for ἐὰν) μή *PFay.* 131.16 (3rd/early 4th cent.)
συμμορία (for συμμορίαν) λαβών *PLBat.* xiii, 19.5 (3rd cent.)
τὴν ἀδελφή (for ἀδελφήν) μου *PSI* 831.11 (4th cent.: *ChrEg.* 45 [1970], 357)
ἐσμέ (for ἐσμέν) σοι *PPrinc.* 120.6 (6th cent.)
τὴν δέσποινά (for δέσποινάν) σου *PApoll.* 62.3 (A.D. 703-15)
cf. ἐκ τõν δοθέντο συ (for τῶν δοθέντων σοι) *PColt* 58.9 (late 7th cent.)

d. Before a word beginning with a vowel (rough or smooth breathing):

τὸ (for τὸν) ἅπαντα χρόνον *PMich.* 263.25 (A.D. 35/36)
ἀπὸ τῶ (for τῶν) ὑπαρχόντων *PPrinc.* 147.9-10 (A.D. 87/88)
τῶ (for τῶν) ὑπ' ἐμοῦ ἀπολιφθησομένων *POxy.* 489.16 (A.D. 117)
ἄλλη ἀπόδειξειν (for ἄλλην ἀπόδειξιν) *BGU* 250 = *WChr.* 87.8 (A.D. 134-7: *BL* i, 434); sim. *POxy.* 149 = *StudPal.* viii, 774.6 (A.D. 572)
ἡμῶ ἡμησίας (for ἡμῶν ἡμισείας) *POxy.* 729.36 (A.D. 137)
καθ' ἑκάστη (for ἑκάστην) ἡμέραν *POxy.* 1769.4-5 (3rd cent.)
τὴ δὲ σεμνοπρεπεστάτη (for τὴν ... -την) ἐλευθέραν *POxy.* 1872.7-8 (late 5th/early 6th cent.)
τὴ (for τὴν) ἀσφάλειαν *POxy.* 1137.3, sim. 4 (A.D. 562/3)

2. Addition of -ν.

a. *In pausa*:

πάντα ... κύριαν (for κύρια) *PMich.* 121 R IV, vii.4 (A.D. 42)

πάση βεβεώισειν (for βεβαιώσει) *PMich.* 276.30 (A.D. 47); sim. *BGU* 228.8-9 (2nd/3rd cent.)
τοῦ ψελείου χρυσοῦν (for ψελίου χρυσοῦ) *PYale* 77.8-9 (ca. A.D. 100)
γαστροκνημίωι δεξιᾶν (for δεξιᾷ) *PBerlLeihg.* 17.13 (A.D. 161)
ἔχουσαν (for ἔχουσα nom.) *SB* 7249 = *PMich.* 217.6 (A.D. 296)

b. Before a word beginning with a stop:

τῶν ἐπάνων (for ἐπάνω) χρόνων *PMich.* 252.6, so duplic. *PSI* 905.11 (A.D. 26-27); *PMich.* 256.7 (A.D. 29-30); sim. *PMich.* 274-5.10 (A.D. 46-47); 305.13-14 (1st cent.)
δέρματα αἴγειαν (for αἴγεια) τέσσαρα *PFay.* 107.2-3 (A.D. 133)
αὐτῆν (for αὐτῇ) τῇ ὅρᾳ (for ὥρᾳ) *POxy.* 528.14 (2nd cent.)
ἔνγισταν (for ἔγγιστα) πληρούντων *BGU* 235 = *WChr.* 399.8, corr. 5 (ca. A.D. 165)
οὐγ (for οὐ) χρή *PAntin.* 43.15 (late 3rd/4th cent.)
μετὰν (for μετὰ) τὸν θεόν *PJand.* 101.7 (5th/6th cent.)

c. Before a word beginning with a liquid, nasal, or sibilant:

ἐν μιᾶν (for μιᾷ) σφ<ρ>αγεῖδι *PTebt.* 311.16 (A.D. 134)
εἰσαείν (for εἰσαεί) σοι *PLond.* 412 = *PAbinn.* 55.16 (A.D. 351)
ἀφορμῆν (for ἀφορμῇ) μηδεμιᾷ *PMon.* 11.53 (A.D. 586)
ἐπιδέχομαιν (for -μαι) μισθώσασθαι *SB* 9561.17 (A.D. 590)

d. Before a word beginning with a vowel (rough or smooth breathing):

εὐδοκεῖν (for εὐδοκεῖ) ἡ γυνή *PMich.* 269-71.4 (A.D. 42)
ἐν τῇ ... οἰκίᾳν (for οἰκίᾳ) ἀπό *PMich.* 230.13-14 (A.D. 48)
ἐπὶ τὸν (for τὸ) ἔλαττον *PMich.* 300.5 (1st cent.)
πρὸ τοῦν (for τοῦ) ἔλθωμεν *POxy.* 2781.4 (2nd cent.); sim. *POxy.* 611 descr. (2nd cent.)
προσέχειν τῆν (for τῇ) ἀδελφῇ *PMich.* 499.15-16; 502.16 (2nd cent.)
δι' οὖν (for οὗ) οὐδέν *PMich.* 544.5 (A.D. 176)
ᾗν ἔχειν (for ἔχει) ἐν *POxy.* 1693.7 (late 3rd cent.)
ἐκλέπτῃ μηχανὴν (for μηχανὴ) ἡμῶν *POxy.* 2730.6-7 (4th cent.)
ἐν τῆν (for τῇ) εἰρήνῃ *POxy.* 1866.1 (6th/7th cent.)

This very frequent omission and converse erroneous addition of final -ν indicates that final nasal was dropped in the speech of many writers of the papyri. Evidence below[1] for the assimilation of final nasal indicates that the loss of final nasal was not a general phonetic shift in the language at this time. The omission of final -ν is found elsewhere in post-classical Greek.[2] In Modern Greek, final

[1] Pp. 165-7.
[2] Thumb, *Hell.*, 173; Dieterich, 88-91.

nasal is normally pronounced (except in some eastern dialects[1]) only in words like the definite article which are closely connected syntactically with the following word when this begins with a stop consonant or a vowel.[2]

B. MOVABLE -ν

1. Movable -ν is used irregularly throughout the Roman and Byzantine periods.[3] Without observable pattern it is used or omitted *in pausa*, e.g., εἴρηκεν *POxy.* 113.26 (2nd cent.), γέγονε *PRyl.* 243.6 (2nd cent.), before a word beginning with a consonant, e.g., ἔστιν γράμματα *POxy.* 37 = *MChr.* 79.13 (A.D. 49), ἔστι δέ *POxy.* 2584.24 (A.D. 211), and before a word beginning with a vowel, e.g., ἔστιν ἀντίγραφον *POxy.* 43 R, iii.5 (A.D. 295), τοῖς οὖσι ἀρχαίοις *PMich.* 583.8,29 (A.D. 78). In Byzantine papyri, -ν tends to be used in all positions.

2. πάλιν is usually spelled with -ν, but πάλι sometimes occurs without distinction before vowels and consonants.[4]

a. πάλιν.

1) + vowel: *PHamb.* 29.8 (A.D. 94+); *POxy.* 237 vi.4,35 (A.D. 186); *PHarris* 108.7 (3rd cent.); *BGU* 909 = *WChr.* 382.13 (A.D. 369); *PSI* 1265.9 (A.D. 426/41); *PCairMasp.* 24 R.12 (ca. A.D. 551); etc.

2) + consonant: *PMilVogl.* 24.19,26, with πάλι + consonant 13 (A.D. 117); *POxy.* 237 iv.12,13,25; vi.6 (A.D. 186); *PSI* 1335.23 (3rd cent.); *PAmh.* 142 = *MChr.* 65.13,14 (4th cent.); etc.

b. πάλι.

1) + vowel: *BGU* 424.3 (2nd/3rd cent.); *PJand.* 98.8 (3rd cent.); *SB* 7253 = *PMich.* 221.6 (ca. A.D. 296); *PSI* 1082.22 (4th cent. ?); etc.

2) + consonant: *POxy.* 298.27 (1st cent.); *PFlor.* 334.6-7 (2nd cent.); *PWürzb.* 21 A.20, cf. 24,25 (2nd cent.); *POxy.* 119.7 (2nd/3rd cent.); *POxy.* 2680.16 (2nd/3rd cent.); etc.

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[1] These include dialects of Asia Minor (Pontus, Cappodocia) and the southeastern islands (Cyprus, Dodecanesus, Icaria) (Thumb, *Hell.*, 173; Georgacas, "On the Nominal Endings -ις, -ιν in Later Greek," 243, fn. 3).

[2] Thumb, *Handbook*, § 34; Pernot, 52-53; Mirambel, *Gram.*, 21, 29.

[3] Mayser's statistical analysis of the use of movable -ν in a selection of Ptol. texts indicates considerable inconsistency already (i, 237; i², 1, 211).

[4] πάλιν is likewise the usual form in the Ptol. papp., but πάλι occurs irregularly (Mayser i², 1, 213).

3. ἕνεκε(ν) is more common than ἕνεκα, but both occur without distinction before vowels and consonants and postpositively.[1]

a. ἕνεκεν.

1) + vowel: *POxy.* 2200.10 (late 2nd cent.); *POxy.* 1156.5 (3rd cent.); *PLeit.* 8.6 (ca. A.D. 250); *POxy.* 1119 = *WChr.* 397.26 (A.D. 253: *BL* i, 332); *POxy.* 2666 i.17-18 (ca. A.D. 308/9); etc.

2) + consonant: *PPrinc.* 71.2-3 (3rd cent.); *PLBat.* xvi, 3.11 (A.D. 257-9); *PLips.* 64 = *WChr.* 281.5 (A.D. 368/9); *PRein.* 54.21-22 (3rd/4th cent.); *PLond.* 235 = *PAbinn.* 29.4 (ca. A.D. 346); *POxy.* 2154.21-22 (4th cent.); *POxy.* 1253.3, etc. (4th cent.); *BGU* 351.1 (Byz.); *PMon.* 1.48 (A.D. 574); *PAntin.* 189.14 (6th/7th cent.); *PJand.* 25.4 (6th/7th cent.); etc.

3) postpositive: *SB* 9105.12-13 (2nd cent.); *POxy.* 1764.7-8 (3rd cent.); *POxy.* 1503.20 (A.D. 288/9); *PPrinc.* 63.4 (3rd/4th cent.); *PGen.* 58 = *PAbinn.* 13.15 (ca. A.D. 346); *PBaden* 29.9 (A.D. 404); *PCairMasp.* 296.14 (A.D. 535); *POxy.* 1865.6 (6th/7th cent.); etc.

b. ἕνεκε occurs rarely.

1) + consonant: *PSI Omaggio* 11.32 (3rd cent.); *SB* 8002.26 (prob. 3rd cent.); *PLond.* 1344.4, sim. 19 (A.D. 709/10); 1355.16 (A.D. 710)

2) postpositive: *POxy.* 2182.34 (A.D. 166)

c. εἵνεκεν occurs postpositively in *PGiss.* 40 = *WChr.* 22.21, with ἕνεκεν 25-26 (A.D. 215); *POxy.* 2187.13 (A.D. 304); cf. εἵνεκ᾽ ἐμοῦ *PPrinc.* 70.8 (ινεκε), 10 (2nd/3rd cent.).

d. ἕνεκα.

1) + vowel: *PGiss.* 65a.5 (ca. A.D. 117); *POxy.* 1293.16 (A.D. 117-38); *PLBat.*xvi, 34.14; 35.18 (A.D. 144); *BGU* 515 = *WChr.* 268.11 (A.D. 193); *POxy.* 1219.5 (3rd cent.); etc.

2) + consonant: *PMich.* 191-2.14 (1st cent.); *PGen.* 6 = *MChr.* 120.17 (A.D. 146); *SB* 7173.2, etc. (2nd cent.); *PWürzb.* 8.8 (A.D. 158/9); *POxy.* 533.25 (late 2nd/early 3rd cent.); *PLond.* 1731.13-14 (A.D. 585)

3) postpositive: *SB* 5230.18-19,36 (early 1st cent.); *POxy.* 113.28 (2nd cent.); *POxy.* 1469.11 (A.D. 298); *PLond.* 237 = *PAbinn.* 26.6, etc. (ca. A.D. 346); *PCairMasp.* 295 iii.21 (6th cent.); etc.

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[1] ἕνεκεν is attested 24 times in the Ptol. papp. as compared with 20 exx. of ἕνεκα (Mayser i², 1, 12-13).

e. ἕνεκαν occurs postpositively in *PCairIsidor.* 105.(10-)11 (A.D. 296).

f. εἵνεκα occurs postpositively in *BGU* 595.(14-)15 (ca. A.D. 70-80); *PHamb.* 54 i.16-17, cf. *BL* i, 193 (late 2nd/early 3rd cent.); *PLond.* 1677.24 (A.D. 566/7); etc.

C. OMISSION AND INSERTION OF MEDIAL NASALS

1. Omission of medial nasals.

a. Before stops (very frequent).

1) Before a velar stop:

συκοιρόντων (for συγκυρόντων) *PMich.* 249.2 (A.D. 18); sim. *PMich.* 276.3,7 (A.D. 47); etc.
ἀπηνέκατο (for ἀπηνέγκατο) *POxy.* 282 = *MChr.* 117.12 (A.D. 30-35); sim. *SB* 10245.16 (A.D. 50-51); *POxy.* 1200.57 (A.D. 270: *BL* ii, 99); etc.
ἀπενέκαι (for ἀπενέγκαι) *POxy.* 119.8 (2nd/3rd cent.); sim. *OMichael.* 78.2 (1st half 3rd cent.); etc.
ἔνικον (for ἔνεγκον) *POxy.* 121.17 (3rd cent.); sim. *BGU* 229.4: 230.4 (2nd/3rd cent.); etc.
ἀνανίκῃς (for ἀνανέγκῃς) *PLond.* 245 = *PAbinn.* 45.18 (A.D. 343); *PThead.* 23 = *PAbinn.* 44.15 (A.D. 342); *PGen.* 47 = *PAbinn.* 47.16 (A.D. 346); etc.[1]
παραγέλλεται (for παραγγέλλεται) *PTebt.* 288 = *WChr.* 266.2 (A.D. 226)
σπλαχνίσαι (for σπλαγχνίσαι) *PHermRees* 16.4 (5th cent.)

2) Before a dental stop:

λύσατι (for λύσαντι) *POxy.* 745.6 (ca. A.D. 1)
πέμψατος (for πέμψαντος) *PPhil.* 35.5 (late 2nd cent.)
γεωργήσατος (for γεωργήσαντος) *PCairIsidor.* 70.7 (ca. A.D. 310)
πάτων (for πάντων) *PMich.* 269-71.2 (A.D. 42); *PMich.* 508.2 (2nd/3rd cent.); *PPrinc.* 73.3 (3rd cent.); *PSI* 831.3 (4th cent.: *ChrEg.* 45 [1970], 357); sim. *PLBat.* vi, 13.32 (A.D. 113/14); etc.
ἀδρός (for ἀνδρός) *PMich.* 351.23 (A.D. 44); sim. *POxy.* 2758.13 (ca. A.D. 110-12); *PSI* 463.6 (ca. A.D. 157/60); *PPrinc.* 73.15 (3rd cent.)
ὁμολογούτων (for ὁμολογούντων) *PMich.* 323-5.15, etc., corr. 28 (A.D. 47)
πωλοῦτει (for πωλοῦντι) *PMich.* 354.5 (A.D. 52); sim. *PAmh.* 130.5-6 (A.D. 70)
αἰτούτων (for αἰτούντων) *POxy.* 1673.21 (2nd cent.)
ἀσθενοῦτος (for ἀσθενοῦντος) *PAntin.* 43.7 (late 3rd/4th cent.)

[1] See Morphology VI D 2.

πέτε (for πέντε) *PCol.* 1 R 4, xv.17 (A.D. 155); *PJand.* 14.6 (4th cent.); sim. *PPrinc.* 79.6 (A.D. 326); *PSI* 884.4 (A.D. 391)

3) Before a labial stop:

πέπτῳ (for πέμπτῳ) *BGU* 2066.6 (A.D. 73/74); sim. *PCornell* 20.28 (A.D. 302); etc.

πέψεις (for πέμψεις) *PSI* 317.23 (A.D. 95); sim. *BGU* 81.16,23 (A.D. 189); *PSI* 900.3, corr. 6,8 (A.D. 314); etc.

ἀφότεροι (for ἀμφότεροι) *PErl.* 44.36 (2nd cent.); sim. *POxy.* 1831.8 (late 5th cent.); cf. *SB* 10693.7, tombstone (1st cent.)

συβίῳ (for συμβίῳ) *PAntin.* 43.1 part. rest., 27 (late 3rd/4th cent.); sim. *POxy.* 2770.33 (A.D. 304); *PIFAO* ii, 39.5,7 (4th/5th cent.); *PSI* 212.3 (6th cent.?)

λαβανόντων (for λαμβανόντων) *SB* 9498 = *PMed.* 86.4 (5th cent.); sim. *PVars.* 28.6 (6th cent.)

b. In other positions:

ὑπόμημα (for ὑπόμνημα) *PMich.* 123 R v.28, etc. 13 times, corr. elsewhere (A.D. 45-47)

ὀμύω (for ὀμνύω) *PTebt.* 316 = *WChr.* 148.76, corr. 39 (A.D. 99)

δραχάς (for δραχμάς) *BGU* 1602.11, corr. 7 (prob. A.D. 138/9); sim. *PTebt.* 397.32 (A.D. 198); *WO* 674.3 (late 2nd/early 3rd cent.); *PPrinc.* 39.5 (3rd cent.); *PSI* 820.50 (A.D. 312-14); etc.

ἑκταδραχαίας (for -δραχμαίας) *OEdfou* 398.3 (A.D. 4)

πύριον (for πύρινον) *PMich.* 581.8 (A.D. 126-8); sim. *SB* 7665.10 (A.D. 225)

λεγομέης (for λεγομένης) *PLBat.* vi, 29.22 (A.D. 133)

ἐξεσταμέα (for ἐξεσταμένα) *PMich.* 427.23 (A.D. 134)

Note. ν is normally omitted before σ in Latin loanwords:

καστρῆσις *castrensis PHamb.* 31.14 (2nd cent.)

γαστρίσι (for καστρισίῳ ?) *POxy.* 1001 descr. (ca. A.D. 572)

καστρήσιος *BGU* 692 = *StudPal.* viii, 1149.2 (Arab.)

καστρισί(ου) *PRossGeorg.* iii, 57.12 (7th/8th cent.)

καστρησιανόν *PCairMasp.* 126.62, etc.; sim. 146.5 (6th cent.)

μεσᾶτιν (for μεσάδιον) *mensa PCairMasp.* 167.10 (6th cent.)

μήσυλαι *mensula BGU* 781 iv.10, v.6: *BL* i, 66 (1st cent.)

μησώρ(ια) *mensorium StudPal.* xx, 151.3,14 (6th cent.)

μιλιαρισίο(υ) *miliarense PLond.* 1338 = *WChr.* 255.9 (A.D. 709); *PRossGeorg.* iv, 15 i.6 (Arab.)

μυλιαρίσιν *PLond.* 1380 = *WChr.* 285.19 (A.D. 710/11)

cf. μειλιαρί{α}σια *PColt.* 71.5 (7th cent.); sim. 158.6 (Arab.)

cf. also Κλήμης *Clemens POxy.* 241.1 (ca. A.D. 98), etc., passim, and occasionally in other names, e.g., Κοσταντίνου *Constantinus PSI* 893.1 (A.D. 315); Κώσταν(τος) *Constans BGU* 1049.1 (A.D. 342); sim. *PGen.* 61 = *PAbinn.* 23.11-12 (ca. A.D. 346); etc.

but κῆνσος, etc., *census*, and δηφήνσωρ, *defensor*, normally have ν:
κήνσου *BGU* 917.6 (A.D. 348)
κήνσῳ *PAmh.* 83 = *WChr.* 230.2 (A.D. 303-6)
but κήσω *SB* 5356.6 (A.D. 311?)
κήνσων *PBeattyPanop.* 2.90,132 (A.D. 300); *PRyl.* 653.3 (A.D. 321); etc.
κηνσίτορι *PCornell* 19.1 (A.D. 298); *PCairIsidor.* 2.1; 4.2; 5.2; etc. (A.D. 298-9); *PStrassb.* 152.5 part. rest. (A.D. 298/9); *PRyl.* 656.2 (A.D. 300); etc.
κηνσίτορος *PCairIsidor.* 7.1 (A.D. 298/9+); *PPrinc.* 119.30 (early 4th cent.); etc.
δηφήνσωρ *PLips.* 34.10 part. rest.; 35.12 (ca. A.D. 375); *PHarris* 135.8 (5th cent.); sim. *PHermRees* 19.4 (A.D. 392); 69.3 (A.D. 412)
δεφήνσωρι *PRossGeorg.*v, 27.1 (1st half 4th cent.)

2. Insertion of nasals.

a. Before stops:

οὗντος (for οὗτος) *PMich.* 228.14 (A.D. 47)
ὠγκτώ (for ὀκτώ) *SB* 9545 (8).4; (9).5 (A.D. 71, 75); *Archiv* v, p. 170-1, #2.5; 3.5 (A.D. 75, 78: *BL* ii, 1,7); *WO* 25.4-5,6; 27.5 (A.D. 74-76)
ἀφεῖνκεν (for ἀφεῖκεν) *POxy.* 2843.5 (A.D. 86)
τεσσεράνκοντα (for τεσσαράκοντα) *SB* 10539.24 (A.D. 104)
μισθωντῇ (for μισθωτῇ) *PGrenf.* ii, 57.2 (A.D. 168)
ἔγγραψα (for ἔγραψα) *PThead.* 1.19, w. ἀγγραμμάτου same line (A.D. 306)
ἀνπάσας (for ἁπάσας) *POxy.* 2407.6 (late 3rd cent.)
ἕνεγκα (for ἕνεκα) *PAlex.* 28.25 (3rd cent.); *PMerton* 92.4 (A.D. 324)
ἕνεγκεν (for ἕνεκεν) *PLBat.* xi, 28.2: *BL* v, 63 (4th/5th cent.); *PApoll.* 15.5 (A.D. 705/6)

b. In other positions:

συνάλλαγμνα (for συνάλλαγμα) *Archiv* v, pp. 382-3, #69 V.6 (1st/2nd cent.)
ἐπιγραφονμένου ὡς ἠξίωνσεν (for ἐπιγραφομένου, ἠξίωσεν) *PTebt* 397 = *MChr.* 321.20 (A.D. 198)
ὄμνυνμεν (for ὄμνυμεν) *PCairIsidor.* 9.9-10 (ca. A.D. 310)
ἐνετιλάνμην (for ἐνετειλάμην) *POxy.* 1299.10 (4th cent.)
ἔχονμεν (for ἔχομεν) *PSI* 884.6 (A.D. 391)
ἐδεξάνμεθα (for ἐδεξάμεθα) *PLBat.* xiii, 20.15 (6th/7th cent.)
μινζόνων (for μειζόνων) *POxy.* 1033 = *WChr.* 476.9 (A.D. 392)
ἐνστίν (for ἐστίν) *PLond.* 991 (iii, 257-8).10, corr. 9 (6th cent.)

Note 1. The future and derivatives of λαμβάνω normally show μ inserted, e.g., λήμψομαι, on the analogy of the present stem.[1]

[1] Nasal forms are already usual in the Ptol. papp. (Mayser i², 1, 166-7). See further Morphology VI A 3.

Note 2. The name *Britannicus* conferred upon Commodus, Caracalla, etc., is sometimes transcribed Βρεντανικοῦ, instead of the usual Βρεταν(ν)ικοῦ, e.g., *PPetaus* 18.19; 22.25 (A.D. 185); *PGrenf.* ii, 62.7,20 (A.D. 211); *BGU* 835.27 (A.D. 217); etc.

Note 3. Medial nasals sometimes interchange, so that μ is written ν; the converse rarely occurs:

νηνός (for μηνός) *PAmh.* 103 = *PSarap.* 29.7 (A.D. 90)
τινήν (for τιμήν) *PRossGeorg.* ii, 15.36 (A.D. 98-102)
συνομώνεκα (for συνομώμοκα) *PTebt.* 298 = *WChr.* 90.80 (A.D. 107/8)
δραχνάς (for δραχμάς) *PLBat.* iii, 10.21, corr. 25 (A.D. 98-117); *PMich.* 563.28-29, w. γράννατα for γράμματα 33, Πτολεναίλα for Πτολεμαίδα 26, etc. (A.D. 128/9)
προκίνενος (for προκίμενος) *SB* 7668.17-18 (6th/7th cent.)
μόμων (for νόμων) *PAberd.* 16.6-7 (ca. A.D. 134)

The very frequent omission and converse insertion of medial nasals, especially before stops, indicates a corresponding loss of nasals in speech. The preconsonantal nasal could have simply been dropped in pronunciation or dropped with consequent nasalization of the preceding vowel.[1] But evidence below for assimilation of nasals[2] suggests that the nasal was sometimes assimilated completely to the following stop so that it did not merely change its own point of articulation but coincided with the following stop, perhaps voicing it.[3]

The loss of medial nasals is not widely paralleled in Greek, and the nasals are preserved in this position in Modern Greek. However, an occasional omission and converse insertion of nasals before consonants is found in the Attic inscriptions, the Ptolemaic papyri, and elsewhere in post-classical Greek.[4]

The frequency of these phenomena in Egypt may be connected with correspondences between Demotic *t* or *nt* and Greek δ,[5] and the occasional use of the Greek letters ϒ and ⲇ in Coptic probably to represent the voiced allophones of ⲕ and ⲧ after ⲛ.[6]

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[1] Mayser suggested this in connection with the loss of final -ν (i, 191).

[2] Pp. 165-72.

[3] Cf. Pamph. πεδε < πέντε. Lejeune, § 130, observes that different orthographies (e.g., Thess. 'Επε(δ)δō for *'Εμπεδδώ, Cret. ποππᾱ for πομπᾱ, etc.), and a comparison with MGr. speakers of the Aegean (where there is [*-nt>-tt->-t-] or [*-nt->*-nd->-dd->d-], permit the supposition that where it is not written, the preconsonantal nasal could have been assimilated to the foll. stop. See also W. Dressler, *AION* 7 (1966), 61-81.

[4] *MS*, 84, & esp. fn. 716; Mayser i², 1, 163-6; Dieterich, 92-96, 111-19; Thumb, *Hell.*, 135-7.

[5] Hess, 132. This approach was originally suggested by Thumb, *Hell.*, 136, and was adopted by Mayser i, 197, to explain the insertion of a nasal before a dental stop.

[6] See above, p. 85.

IV. SIBILANTS[1]

In the papyri of the Roman and Byzantine periods, ζ and σ interchange occasionally not only before voiced consonants, as in some ancient dialects, but also in other positions. Final -ς, like final -ν, is frequently omitted and conversely sometimes added regardless of the initial sound of the following word. Movable -ς is likewise used irregularly. In addition, medial σ, like ν, is occasionally omitted and conversely inserted in various phonetic conditions. Final -ν and -ς sometimes interchange.

These phenomena lead to the following phonological conclusions.

1. The sound represented by ζ had shifted from a consonant cluster /dz/ to simple /z/.

2. σ represented /z/ before a voiced consonant.

3. /s/ and /z/ were underdifferentiated and identified in /s/ by many speakers through bilingual interference.

4. Final /s/ was dropped in the speech of many writers regardless of the nature of the following sound.

5. Medial /s/ was occasionally dropped before another consonant, especially a dental stop.

6. Final /n/ and /s/ were sometimes confused.

A. INTERCHANGE OF SIBILANTS (σ ζ)

1. σ is frequently replaced by ζ before a voiced consonant:

νομίζματος (for νομίσματος) *OStrassb.* 776.7 (early Rom.); *PStrassb.* 382.3 (A.D. 94); *BGU* 69 = *MChr.* 142.6 (A.D. 120); *BGU* 741 = *MChr.*

[1] Schwyzer i, 216-18, 306-8, 329-32; Lejeune, § 67-78, 91-121, 279; Buck, *GD*, § 59-60, 84; *MS*, 88-91, 92; Schweizer, 115-16; Nachmanson, 84-86, 87; Hauser, 59, 62-63; Rüsch, 205-8, 225-6, 272-3; Mayser i², 1, 176-83, 214-17; Crönert, 92-97, 142-5; *BDF*, § 10, 36, 39.4; Psaltes, 84, 101, 133.

244.11 part. rest. (A.D. 143/4); *POxy.* 1697.15 (A.D. 242); sim. *POxy.* 2729.37 (4th cent.)

κ[α]ταλοχιζμῶν (for καταλοχισμῶν) *PMich.* 353.17-18 (A.D. 48)

δραζμῶι (for δρασμῶι) *POxy.* 2838.5 (A.D. 62)

ἀμφιαζμοῦ (for ἀμφιασμοῦ) *SB* 10288 (2).8-9 part. rest., 16 (A.D. 132)

ἀμφιζβητήσεως (for ἀμφισβητήσεως) *PMilVogl.* 129.2-3 (A.D. 135); *PAmh.* 141 = *MChr.* 126.6 part. rest. (A.D. 350); sim. *SB* 9290.6-7 (mid 2nd cent.); *PPar.* 69 = *WChr.* 41 iii.23 (A.D. 232)

ἐσσφραγιζμένα (for ἐσφραγισμένα) *POxy.* 528.16 (2nd cent.)

κα]τακεχωριζμένον (for κατακεχωρισμένον) *BGU* 2117.12 (late 2nd cent.)

This phenomenon, paralleled in classical dialects and elsewhere in the Koine,[1] indicates that the sound represented by ζ had shifted from a consonant cluster /dz/ or /zd/ to simple /z/[2] to be able to interchange with /s/, which in turn was voiced by assimilation to a voiced consonant immediately following.

Note. Words beginning with σμ- fluctuate between this spelling and initial ζμ-. The following variations occur in individual words.

a. σμύρνα and its derivatives are usually spelled ζμ-, but σμ- spellings are found especially in Byzantine papyri.

ζμύρνης *BGU* 1875.19 (after A.D. 30); *PRossGeorg.* v, 52.4 (2nd cent.); *SB* 9348 i.10 (A.D. 169/70); *StudPal.* xxii, 183.47 (A.D. 171); *BGU* 1 = *WChr.* 92, ii.11 (2nd/3rd cent.); *PSI Omaggio* 12.13 (3rd cent.); *POxy.* 2570 iii (a).14 (A.D. 329); sim. *PSI* 782.10 (A.D. 340/1); *OTait* 2153.4 (4th cent.); *PMichael.* 36 B.13 (Byz.); cf. *PTebt.* 273.18, etc., medical (late 2nd/early 3rd cent.); *PGM* 36.333, etc. (4th cent.); etc.

but σμύρνης *PAntin.* 32.30 part. rest. (A.D. 339); *PSI* 1264.19 (4th cent.); *SB* 5307.7 abbrev. (Byz.)

cf. σμύρναν *PGM* 2.34 (4th cent.)

cf. μύρνης *PGM* 3.244 (after A.D. 300); sim. *PGM* 4.1423 (4th cent.)

ζμυρναίας *PPrinc.* 155 R.5, V.4 (2nd/3rd cent.)

but σμιρινῆαν (= σμυρναῖαν for σμύρναν?) *POxy.* 1739.6 (2nd/early 3rd cent.)

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[1] Cf. Att. ἀναβαζμούς 329 B.C. (*MS*, 92), Delph. πρεζβευτάς, etc., 2nd cent. B.C. (Rüsch, 206), and Ζμύρνα, etc., passim (Schwyzer i, 217). In the Ptol. papp., σ > ζ before μ and β is found esp. freq. in the 3rd cent. B.C. (Mayser i², 1, 176-7).

[2] Gr. ζ, arising from the combination of σ+δ or the clusters /dj, gj, ʾj/, developed exc. in Lesb. either to /d(d)/ through regressive assimilation in El., Lac., Boeot., etc., by the 6th cent. B.C., or to /zz/, generally simplified to /z/, in Att.-Ion. and most of the other dialects, as indicated for 6th cent. B.C. Arg. by ζ > σ in inscrr., e.g., hοῖζ δέ (Schwyzer i, 329-32; Lejeune, § 91-97; Buck, *GD*, § 84). See further Mathews, *Lingua* 4 (1954), 63-80; Allen, *Vox Graeca*, 53-56; Lupaş, *Phonologie*, 26-28.

Σμυρναίου (geographical designation) *PLond.* 1178 = *WChr.* 156.52 (A.D. 194)

ζμύρνιν[ον *POxy.* 1584.18 (2nd cent.)

cf. ζυρνίνη (for ζμυρνίνη) *PGM* 8.97 (4th/5th cent.)

cf. ζμυρνομέλανι *PGM* 36.103, with ζμυρνίσας 313, etc. (4th cent.); ζμύρνισον *PGM* 19b.3 (4th cent.); etc.

but σμυρνομέλανι *PGM* 72.7 (early 2nd cent.); *PGM* 2.30, etc. (4th cent.)

b. σμάραγδος usually appears with ζμ- (including in proper names):

Ζμάρακδος (for Ζμάραγδος personal name) *PStrassb.* 505.14, sim. 16 (A.D. 108-16); sim. *PSAAthen.* 43 R.13,16 (A.D. 131/2 ?); *POxy.* 1449.47 (A.D. 213-17)

ζμαράγδινον *PHamb.* 10.25 (2nd cent.)

cf. ζμαράγδου *SB* 10173.7, inscr. (A.D. 11)

but σμαράγδινος *CPR* 27 = *StudPal.* xx, 15.8 (A.D. 190)

c. σμῆ(γ)μα and related forms are more common in the σμ- spelling:

ζμῆμα *PRyl.* 230.8 (A.D. 40); sim. *PLond.* 243 = *PAbinn.* 8.23-24 (ca. A.D. 346)

ζμημοδοκίτον (for σμηματοδοκίδα) *PMich.* 343.5 (A.D. 54/55)

but σμήματος *PHermRees* 38.3,6 abbrev. (5th cent.); sim. *POxy.* 2051.21 (6th/7th cent.)

σμηγμάτων *StudPal.* iii, 72a.4 (6th cent.); *PLond.* 113(4) (i, 208-19).18-19 (A.D. 595); sim. *POxy.* 1917.101 (6th cent.)

ἐσμημμένα *PSI* 950.12 (3rd cent.)

σμηκ(τά) *POxy.* 1735.3 (4th cent.)

d. σμῆνος is attested only with σμ-:

σμήνη *BGU* 1567 A i.14; B.10,14,19 (3rd cent.)

σμειν( ) (for σμηνουργός) *OTait* 1932.8 (3rd cent.)

e. Diminutives of σμίλη are attested in both spellings:

σμηλίο[ν] (for σμιλίον) *POxy.* 326 descr. R (ca. A.D. 45)

ζμιλάριν (for σμιλάριον) *PJand.* 148 V.6 (2nd cent.)

f. σμικρός, the by-form of μικρός, is found only with σμ-:

σμικρῶς *PCairMasp.* 295 iii.25 (6)

σμικρομερῶς *PCairMasp.* 2 i.6 (A.D. 567: *BL* i, 100)

σ[μι]κρότητος *SB* 9926.4 (7th cent.)

2. σ and ζ interchange occasionally in other positions, including intervocalically.

a. σ > ζ:

ἄζημος (for ἄσημος) *BGU* 854.10 (A.D. 44/45)
ἄζπασε (for ἄσπασαι) *PGiss.* 97.14 (2nd cent.)
ζώσζεσθαι (for σώζεσθαι) *PMich.* 499.6 (2nd cent.)
συνζώζιν (for συσσώζειν) *POslo* 137.12 (3rd cent.); cf. ζῶζε (for σῶζε) *SB* 1060.2, inscr. (n.d.)
ἴζη[ν] (for ἴσην) *PMich.* 544.6, with προσαίπεζε (for προσέπεσε) 5 (A.D. 176)
ἴζου (for ἴσου) *StudPal.* iii, 384.3 (5th/6th cent.)
ἐζηφώνησα (for ἐσυμφ-) *PHermRees* 15.2-3, sim. 6: *BL* v, 45 (late 4th/early 5th cent.)
ζυμαχίας (for συμμαχίας) *PJand.* 37.5, with συμμάχ(ου) 3 (5th/6th cent.)

b. ζ > σ:

σόφυτος (for ζώφυτος) *PMich.* 540.8 (ca. A.D. 53)
μίσονος (for μείζονος) *PAmh.* 130.16 (A.D. 70); *POxy.* 1835.3,4 (late 5th/early 6th cent.)
ἀσσπάσομε, ἀσπάσετε (for ἀσπάζομαι, ἀσπάζεται) *BGU* 247.8,12 (2nd/3rd cent.); sim. *SB* 4317.28-29 (ca. A.D. 200); *PGot.* 14.6,7 (7th cent.); cf. *POxy.* 1489.1 (late 3rd cent.)
τράπαισαν (for τράπεζαν) *PHamb.* 42.8-9 (A.D. 216); sim. *PCairMasp.* 6 V.46-47 (6th cent.)
χρήσον[τος] (for χρήζοντος) *PAntin.* 43.7 (late 3rd/4th cent.)
ἐσήτησα (for ἐζήτησα) *PSI* 972.24 (4th cent. ?)
σῷα (for ζῷα) *PAmh.* 150.21, with ζῷα 23,39 (A.D. 592)

3. ζ is occasionally written σζ:

ἐνε]χυράσζιν (for ἐνεχυράζειν) *SB* 8030 = *PMich.* 245.40 (A.D. 47)
ἐργασζομένου *PMich.* 229.9 (A.D. 48); sim. *POxy.* 2339.17 (1st cent.); *PSAAthen.* 35.10-11 (A.D. 153/4)
χρήσζης (for χρήζης) *PCornell* 49.9 (1st cent.)
ἱματισζομένου (for ἱματιζομένου) *POxy.* 275 = *WChr.* 324.14-15 (A.D. 66)
ποτίσζονται (for ποτίζονται) *PHamb.* 62 = *PLBat.* vi, 23.10 (A.D. 123); sim. *POslo* 155.11 (2nd cent.)
ζώσζεσθαι, παρακομισζόντων, ἀσπάσζομαι (for σώζεσθαι, etc.) *PMich.* 499.6,12-13,16-17 (2nd cent.)
ἀσπάσζετε (for ἀσπάζεται) *SB* 7662.21, sim. 24 (late 2nd cent.)
ὁρ]ισζομ[ένων] (for ὁριζομένων) *PPetaus* 15.16 (A.D. 184/5)
γνωρίσζω (for γνωρίζω) *SB* 6293.13: *BL* ii, 2, 123 (A.D. 195/6); *POxy.* 2914 i.21 part. rest. (A.D. 269)
σπουδάσζουσειν (for σπουδάζουσιν) *PRyl.* 654.10 (before A.D. 336: *BL* iv, 75)

χρηματισζούσ̣[η] (for χρηματιζούσῃ) *PAberd.* 180.2 (4th cent.)
λογισζομένης (for λογιζομένης) *POxy.* 1056.5 (A.D. 360)
ἀσφαλισζόμενοι (for ἀσφαλιζόμενοι) *POxy.* 1033 = *WChr.* 476.13 (A.D. 392)

4. σ is sporadically written σζ:

πλῆσζματα (for πλήσματα) *SB* 9636.20 (A.D. 136)
κονχίσζματα (for κογχίσματα) *POxy.* 2729.29, sim. 34 (4th cent.)

The interchange of σ and ζ in positions other than before a voiced consonant indicates an identification of the phonemes /s/ and /z/ in the speech of individual writers. The unconditioned interchange of σ and ζ is found only sporadically elsewhere in Greek.[1] In Egypt, it reflects underdifferentiation of voiced and voiceless sibilants in Greek through bilingual interference. In Coptic, there was only a voiceless sibilant /s/, parallel to the voiceless stop phonemes without voiced counterparts.[2] The spelling σζ for ζ, attested in late Attic and other inscriptions,[3] probably represents confusion and juxtaposition of the two symbols for the single sibilant /s/, analogous to the gemination of σ.[4]

B. OMISSION OF σ/ς

1. Final -ς.[5]

a. Final -ς is frequently omitted in writing regardless of the nature of the following sound. Conversely, it is sometimes added erroneously.

1) Omission of -ς.

a) Before a word beginning with a consonant (including before σ, where haplography in continuous writing is a possible alternative interpretation):

εἰ (for εἰς) τὸ δημόσιον *PMich.* 331.4 (A.D. 41)
εἰ (for εἰς) σποράν *PMich.* 121 R II i.2; vi.1; R IV v.2 (A.D. 42);

[1] E.g., Σεύς (for Ζεύς) Att. ca. 340 B.C. (*MS*, 92). Cf. Schwyzer i, 217-18; Hauser, 59, 62.

[2] ϛ is used in Coptic almost excl. in Greek loanwords, in which it often interchanges with c (Crum, sub ϛ; Till, 41; Worrell, 85, 114; Kahle, VIII, § 69, 104; Böhlig, 110-11). Cf. Greek transcriptions of Demotic *ns* by ζ or *nt* by δ, etc. (Hess, 133).

[3] E.g., συναγωνισζόμενος Att. before 260 B.C. (*MS*, 92). See also Rüsch, 206, 225-6. The spelling σζ for ζ in Att. and other inscrr. from ca. 330 B.C. on does not indicate a retention of a [zd] pronunciation of ζ as if parallel to the contemporary occasional spelling σστ for στ (as Lejeune, § 94, maintains), because it sts. appears not only for ζ but also for σ before a voiced consonant, as in ἐνδέσζμους.

[4] See below, pp. 159-160.

[5] Cf. Völker, 33-36.

PMilVogl. 64.14; 65.11 (A.D. 161-80); *PNYU* 18.15 (A.D. 312+); etc.[1]

εἰ (for εἰς) τὴν ἑορτήν *PHarris* 107.20 (3rd cent. ?); sim. *SB* 1975 (5th cent.); *PVars.* 29.2 (6th cent.); etc.

ὡ (for ὡς) γυναικὶ γαμετῆι *PMich.* 339.3 (A.D. 46)

ὡ πρόκιται (for ὡς πρόκειται) *StudPal.* xx, 13 V.23 (A.D. 254); *PCairIsidor.* 95.15 (A.D. 310); etc.

ἡ πρᾶσι (for πρᾶσις) καθώς *PMich.* 309.9-10 (1st cent.)

ἐνδεδυμένο (for -μένος) χιτῶνα *POxy.* 285.11 (ca. A.D. 50)

πρὸ τώ (for πρὸς τό) *POxy.* 2873.19 (A.D. 62)

πρὸ (for πρὸς) σέ *PAmh.* 93 = *WChr.* 314.21 (A.D. 181); sim. *POxy.* 1069.6,18, with πρὸ<ς> λόγον 19,25 (3rd cent.)

ἐκ τῶν ὑπαρχόντων αὐτοῖ (for αὐτοῖς) πάντων *PMerton* 17.37-38 (A.D. 158)

ὃ αἴπεμψά (for ἔπεμψάς) μοι *POxy.* 1670.12 (3rd cent.)

τῆς ἀδελφῆ (for ἀδελφῆς) σου *PTebt.* 422.8-9 (3rd cent.)

τῆς θυγατρό (for θυγατρός) μου *SB* 7248 = *PMich.* 216.5 (A.D. 296)

τῆς μητρό (for μητρός) μου *PThead.* 1.19 (A.D. 306)

τῆς πράξεω (for πράξεως) παρά *POxy.* 103.19 (A.D. 316)

νομίσματο (for νομίσματος) τρίτον *PSI* 81.9 (6th cent.)

b) Before a word beginning with a vowel:

ἐν αἶ (for αἷς) ἀ[πο]καταστήσω *POxy.* 259 = *MChr.* 101.7 (A.D. 23)

τῆς ἐνεστώση (for -σης) ἡμέρας *PRein.* 104.6 (A.D. 26)

τὰ (for τὰς) ἴσας *PMilVogl.* 23.20 (A.D. 108); sim. *PJand.* 101.5 (5th/6th cent.)

τῆ (for τῆς) ἐπιγονῆς *PFlor.* 20 = *WChr.* 359.7, sim. 28,35-36 (A.D. 127)

παρὰ τοῖ (for τοῖς) ἐνθά[δ]ε θεοῖς *PFay.* 130.5 (3rd cent.)

τοὺ (for τοὺς) ἐμούς *POxy.* 1164.10 (6th/7th cent.)

ἐναξιοῦντε (for -τες) ἀχθῆναι *PLBat.* iii, 6.19 (A.D. 350)

γραμματεὺ ὀσίας (for -εὺς οὐσίας) *StudPal.* viii, 1260.1 (6th cent.)

2) Addition of -ς:

ἐμ μιᾶς σφραγίδιν (for ἐν μιᾷ σφραγίδι) *PMich.* 314.3 (1st cent.)

τῇ σχολῆς (for σχολῇ), οἷον *PGiss.* 85.14 (ca. A.D. 117)

τοῦς (for τοῦ) εὐήθους *PStrassb.* 515.9, corr. 12-13 (2nd cent.)

κοινῆς (for κοινῇ) π[ρ]ός *POxy.* 2722.62 (A.D. 154)

ν[υ]κτὶ [τ]ῇ φερούσης (for φερούσῃ) εἰς *BGU* 72.4 (A.D. 191)

ἀργυρικοῦ φόρους (for φόρου) ὧν *POxy.* 1719.8 (A.D. 204); sim. *SB* 10216.10 (3rd/4th cent.)

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[1] The freq. spelling εισποραν is better printed εἰ<ς> σποράν than εἰς <σ>πoράν, e.g., in *SB* 9482.9 (A.D. 117-38); *PGen.* 70 = *WChr.* 380.8 (A.D. 381); *POxy.* 1126.9 (5th cent.); etc., and similarly εἰ<ς> σπέρματα, not εἰς <σ>πέρματα *POxy.* 1031 = *WChr.* 343.9 (A.D. 228); εἰ<ς> σφυρίδα, not εἰς <σ>φυρίδα *PSAAthen.* 66.17 (3rd cent.), etc., because final -ς is much more freq. om. than initial σ.

καταπομπῆς τῆς ἀννώνη (for καταπομπὴ τῆς ἀννώνης) *POxy.* 1415.7 (late 3rd cent.)

γεωργοὶ ὁρμώμενοις (for -μενοι) ἀπό *PAntin.* 42.7 (A.D. 542)

These phenomena indicate that final /s/ was dropped in the speech of many writers. Final /s/ is sometimes lost elsewhere in the Koine.[1] But unlike final /n/, final /s/ has generally survived in Modern Greek except in words in which its loss is caused by morphological or analogical factors.[2] Explanations of the omission of -ς in the papyri exclusively on grounds of orthographic and syntactical error far exceed the evidence for haplography and confusion of cases when other letters are involved.

b. Movable -ς is used irregularly.

1) οὕτως is the more common spelling before vowels and consonants and *in pausa*; οὕτω is sometimes used, especially before consonants.[3]

a) οὕτως.

i. + vowel: *SB* 8997 = *PMed.* 36.17 (A.D. 117/18); *PStrassb.* 140 = *PSarap.* 100.10 (early 2nd cent.); *PJand.* 145.9 (A.D. 224); *PHarris* 69 i.6 (early 3rd cent.); *PJand.* 11.5 (4th cent. ?: *BL* i, 197); *PMichael.* 41.71 (A.D. 539/54); *PCairMasp.* 314 iii.45 (6th cent.); etc.

ii. + consonant: *PTebt.* 289 = *WChr.* 271.5 (A.D. 23); *PAmh.* 131 = *PSarap.* 80.13 (early 2nd cent.); *PMilVogl.* 24.42 (A.D. 117); *PMerton* 82.10 (late 2nd cent.); *PRossGeorg.* iii, 2.30 (3rd cent.); *PLBat.* xi, 15.15 (3rd/4th cent.); *POxy.* 940.5 (5th cent.); *POxy.* 941.7 (6th cent.); etc.

iii. *in pausa*: *PPhil.* 1.51 (ca. A.D. 103-24); *PRossGeorg.* ii, 26.7 (A.D. 160); *PLBat.* xvi, 2.22 (early 3rd cent.); *PFlor.* 71.489 (4th cent.); *POxy.* 1026.9,15 (5th cent.); *PCairMasp.* 311.11 (A.D. 569/70 ?); etc.

b) οὕτω.

i. + vowel: *PLeit.* 5.16, with οὕτως + vowel 19,24 (ca. A.D. 180); (οὕτο) *SB* 9137.7 (5th cent.)

ii. + consonant: *BGU* 8 i.16 (ca. A.D. 248); *PSI Omaggio* 12.4-5 (3rd cent.); *PGron.* 17.20 (3rd/4th cent.); *POxy.* 1186.3 (4th cent.); *PCairMasp.* 299.59; 310 V.12 (6th cent.); *PMichael.* 38.12; 40.26 (6th cent.); *PMon.* 11.61-62 (A.D. 586); etc.

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[1] Omission of -ς is found in Delph. inscrr. esp. before dentals (Rüsch, 207-8), and on Greek vases (Kretschmer, *Vas.*, 185). In Att. inscrr., final -ς is om. only before a word beg. w. σ (*MS*, 90-91). Only in the Ptol. papp. is final -ς freq. om. (Mayser i², 1, 180-3). Cf. Schwyzer i, 217.

[2] E.g., fem. nouns of the 2nd decl., ἡ Σάμο, ἡ ἄμμο, etc., exc. in some dialects (Thumb, *Handbook*, § 63, 87), because -ς is the normal nom. masc. ending (Jannaris, § 247, 263, 292b, 338). Final /s/ is lost only in Tsaconian (Hatzidakis, *Einl.* 11 & Excurs ii, pp. 232-3).

[3] In the Ptol. papp., οὕτως is usual before vowels and consonants after the 3rd cent. B.C., during which οὕτω predominates before consonants (Mayser i², 1, 214).

iii. *in pausa*: *PLBat.* xi, 1 i.19; ii.17 (A.D. 338)

2) ἄχρις and μέχρις appear before vowels and later before consonants approximately as frequently as the Attic spellings without -ς.[1]

a) ἄχρις and μέχρις.

i. ἄχρις + vowel: *PBas.* 18.4 (early Rom.); *BGU* 1576.5 (1st half 2nd cent.); *PRossGeorg.* ii, 26.11 (A.D. 160); *POxy.* 59.9 (A.D. 221); *PCairIsidor.* 44.14 (A.D. 305/6); *PAmst.* 1.14 (A.D. 455); *POxy.* 125.19 (A.D. 560); *PApoll.* 18.10; 19.6 (ca. A.D. 705/6); etc.; cf. *PGM* 61.4 (late 3rd cent.); 4.192; 5.58 (4th cent.); 1.87 (late 4th/5th cent.)

μέχρις + vowel: *SB* 7357 = *PMich.* 206.17 (2nd cent.); 210.8 (2nd/early 3rd cent.); 211.3 (2nd/3rd cent.); *BGU* 8 ii.6 (ca. A.D. 248); *PLips.* 58.16 (A.D. 371); *PLips.* 34.16 (ca. A.D. 375); etc.; cf. *SB* 6039.2, inscr. (A.D. 147); *PGM* 7.612 (3rd cent.); 12.33 (A.D. 300-50); 2.43 (4th cent.); 1.345 (late 4th/5th cent.)

ii. ἄχρις + consonant: *PRyl.* 116.18-19 (A.D. 194); *PLips.* 64 = *WChr.* 281.17 (A.D. 368/9); *SB* 9442 = *PMed.* 41.11 (5th cent.); *PSI* 843.12 (5th/6th cent.); *PGron.* 10.17(-18) (prob. 6th cent.: *BL* v, 39); etc.; cf. *PGM* 3.421 (A.D. 300+); 4.948,1430 (4th cent.)

μέχρις + consonant: *POxy.* 123.5 (3rd/4th cent.); *PMerton* 38.6-7 (mid 4th cent.); *BGU* 316 = *MChr.* 271.28 (A.D. 359); *PLips.* 22 = *MChr.* 277.16 (A.D. 388); *PFlor.* 360.2 (5th cent.); *SB* 9285.5-6 (2nd half 6th cent.); etc.; cf. *PGM* 4.1211 (4th cent.); 36.36 (4th cent.)

b) ἄχρι and μέχρι.

i. ἄχρι + vowel: *PMich.* 305.15 (1st cent.); *POxy.* 104.18 (A.D. 96); *PGissBibl.* 20.28 (1st half 2nd cent.); *PMich.* 501.12 (2nd cent.); *PRyl.* 177.11 (A.D. 246); *PBaden* 27.6 (A.D. 316); *PMichael.* 42 A.24,28 (A.D. 566); *PEdfou* 2.9 (7th cent.); etc.; cf. *PGM* 61.16,18 (late 3rd cent.); 13.212,567 (A.D. 346); 5.94 (4th cent.)

μέχρι + vowel: *POxy.* 293.7 (A.D. 27); *PHamb.* 4.10 (A.D. 87); *PGiss.* 70.4 (ca. A.D. 117); *PVindobWorp* 10.16 (A.D. 143/4); *PWürzb.* 8.12 (A.D. 158/9); *POxy.* 1631.24 (A.D. 280); *PCairMasp.* 154 R.16; V.9 (6th cent.); etc.; cf. *PMur.* 114.16 (A.D. 171 ?); *PGM* 4.378-9 (4th cent.)

ii. ἄχρι + consonant: *PLond.* 1912.53 (A.D. 41); *BGU* 1655.58 (A.D. 169); *WO* 1135.5 (A.D. 214); *POxy.* 2143.3 (A.D. 293); *SB* 6662.6 (4th cent.); *POxy.* 1891.8 (A.D. 495); *PAntin.* 95.16 (6th cent.); *PPar.* 20.34 (A.D. 600); etc.; cf. *PGM* 13.122,679 (A.D. 346); *PGM* 1.230 (late 4th/5th cent.); etc.

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[1] ἄχρι and μέχρι are alone used in Att. inscrr. (*MS*, 212, 219), in the Atticists (Schmid, i, 113; ii, 90-91; iii, 106, 286; iv, 459), and in the Ptol. papp. (Mayser i², 1, 215). Spellings in -ς are virtually limited in the NT to ἄχρις (μέχρις) οὗ (*BDF*, § 21).

μέχρι + consonant: *SB* 5232.16 (A.D. 14/15); *PGiss.* 84 ii.10 (early 2nd cent.); *BGU* 467.16 (A.D. 177); *PAmh.* 136.14 (3rd cent.); *POxy.* 71 i = *MChr.* 62.13 (A.D. 303); *SB* 7627 = *PCairIsidor.* 119.7 (A.D. 311); *PAntin.* 94.13 (6th cent.); *PApoll.* 29.8 (ca. A.D. 713); etc.; cf. *PGM* 7.212 (3rd cent.); 3.195,707 (A.D. 300+); 4.88, 2425-6 (4th cent.)

3) Multiplicatives normally end in -άκις; spellings in -άκι are rare.[1]

a) In simple forms:

πεντάκι *in pausa* *PMich.* 349.11 (A.D. 30)
πλειστάκι ὡσαύτως *PRyl.* 130.12 (A.D. 31)
πλειστάκις + consonant: *PMich.* 466.5 (A.D. 107); *PMerton* 101 i.10 (A.D. 109); *PRossGeorg.* ii, 20.18 (ca. A.D. 146); *POxy.* 237, viii.23 (A.D. 186); *POxy.* 2133.20-21 (late 3rd cent.); etc.
πλειστάκις + vowel: *SB* 9415 (30).15 (A.D. 256)
ὁσάκι γάρ *PMich.* 465.9-10 (A.D. 107)
ὁσάκις + vowel: *PBrem.* 62.3 (ca. A.D. 117); *POxy.* 471.52 (2nd cent.); *PHamb.* 37.3 (2nd cent.); etc.
ọσ̣άκις + consonant: *PLBat.* xi, 10.6 (6th cent.)
πολλάκι + consonant: *PMich.* 499.12 (2nd cent.); *BGU* 417.27, with πολλάκις + vowel 10 (2nd/3rd cent.); *PStrassb.* 171.2 (early 3rd cent.); *PSI* 1445.7 (3rd cent.)
πολλάκις + consonant: *POxy.* 1070.14, etc. (3rd cent.); *PThead.* 15.6-7 (A.D. 280/1); *POxy.* 1680.10 (late 3rd/early 4th cent.); *POxy.* 1588.7 (early 4th cent.); *PHermRees* 11.4-5 (4th cent.); *PLips.* 33 ii = *MChr.* 55.13 (A.D. 368); *POxy.* 1033 = *WChr.* 476.11 (A.D. 392); *POslo* 88.6, etc. (late 4th cent.); etc.
πολλάκις + vowel: *POxy.* 2342.22 (A.D. 102); *PBrem.* 17.3 (ca. A.D. 117); *PAlex.* 27.22 (2nd/3rd cent.); *POxy.* 1070.47,54 (3rd cent.); *PSI* 1339.7 (4th cent.); 887.11 (6th cent.); *PCairMasp.* 243.10 (6th cent.); *SB* 7520.20 (A.D. 710); etc.
πολλάκις *in pausa* *PLips.* 33 ii = *MChr.* 55.4 (A.D. 368)
ὁποσάκις + vowel: *PGiss.* 48 = *WChr.* 171.11 (A.D. 202/3)
δισσάκις, τρισσάκις + consonant: *PHamb.* 23.25 (A.D. 569)

b) In composition:

πεντακιχιλιῶν, ἑπτακιχιλίας *PAmh.* 79.32,56 (ca. A.D. 186)
πεντακιχίλιαι *BGU* 271 ii.6 (2nd/3rd cent.)

Note 1. ἄντικρυς is used more often than ἀντικρύ with similar meanings; καταντικρύ is the only form found in documentary papyri.

ἄντικρυς κελεύωι *PLond.* 1912.89 (A.D. 41)

[1] Multiplicatives likewise usually end in -άκις in the Ptol. papp. (Mayser i², 1, 215).

ἄντικρυς Τυχαίου *PTebt.* 398.5 (A.D. 142); 395.4 (A.D. 150)
ἄντικρυς ἁπάντων *POxy.* 471.81-82 (2nd cent.)
ἄντικρυς α[ὐ]τῆς *StudPal.* xxii, 131.4 (ca. A.D. 158/9)
ἄντικροις (for -κρυς) *in pausa* *PMich.* 425.13 (A.D. 198)
ἄντικρυς ταύτης *PStrassb.* 150 = *SB* 8940.9 (late 2nd/early 3rd cent.: *BL* v, 133)
ἄντικρυς οἰκίας *POxy.* 43 V = *WChr.* 474 iii.21 (ca. A.D. 295)
ἄντικρυς τοῖς δεκαπρώτοις *PBeattyPanop.* 2.69 (A.D. 300)
ἄντικρυς (δηλατορίαν) *PPrinc.* 119.24,53-54 (early 4th cent.)
ἄντικρυς γινόμενοι *StudPal.* xx, 88.11 (A.D. 337)
cf. ἄντικρυς *PGM* 4.1719-20,3018 (4th cent.); 8.88 (4th/5th cent.); 1.24,71 (late 4th/5th cent.)

ἀντικρὺ τοῦ *PMeyer* 20 V.4 (1st half 3rd cent.)
ἀντικρὺ τῶν *PFlor.* 384.5 (5th cent.?)

κατἀντικρὺ κ[ατ]ηντηκός *PFlor.* 47 i = *MChr.* 146.10, sim. 31 (A.D. 213/17)
κατἀντικρὺ Τοού *PSI* 734.20, sim. 21-22 (A.D. 218-22)
κατἀντικρὺ κυ[ρ]τοπλοκῖον *POxy.* 2719.11 (3rd cent.)
κατἀντικρὺ Ἀβυδῶν *PBeattyPanop.* 2.292 (ca. A.D. 300)
κατἀντικρὺ ἐπάνω *PCairMasp.* 313.36-37 (6th cent.)
κατἀντικρὺ Ἀπ[όλλωνος Ἄνω *PApoll.* 56.2 (A.D. 703-15)
cf. κατἀντικρὺ τοῦ *PGMXtn.* 21.12, sim. 13 (ca. A.D. 300); *PGM* 4.89-90 (4th cent.)

but κατἀντικρύς *in pausa* *PGM* 36.3 (4th cent.)

Note 2. εὐθύς (temporal) is the usual form, but εὐθύ is also used in Byzantine papyri.[1]

εὐθύς σε οὐ κρατῶι *PFay.* 109.2 (early 1st cent.)
εὐθὺς ἐπιβέβηκα, εὐθὺς ἔμελκε *POxy.* 1155.3,4-5 (A.D. 104)
ἀποχὰς εὐθὺς ἀποδοῦναι *SB* 7741.6 (early 2nd cent.)
εὐθ[ὺ]ς μετὰ τοῦτο *PFouad* 80.11 (4th cent.)
εὐθὺς καὶ παραχρῆμα *PStrassb.* 35.17 (4th/5th cent.)
εὐθὺς ἔγραψα *PCairMasp.* 67.1 (1st half 6th cent.)

εὐθὺ καί *PLips.* 111.16 (4th cent.)
εὐθὺ καὶ παραχρῆμα *PFlor.* 292.4; 293.4 (6th cent.); sim. *PBerlZill.* 13.2 (6th cent.)
εὐθὺ μετ' ἐμὴν τελευτήν *PGron.* 10.11 (prob. 6th cent.: *BL* v, 39)

Note 3. χωρί appears for χωρίς before ἄλλων in *PAmh.* 113.22, with χω[ρὶ]ς ἄλλων 36 (A.D. 157).[2]

Note 4. ἀντίς 'opposite' occurs in ἀντὶς τοῦ μαρτυρίου *POxy.* 941.4 (6th cent.).

[1] The two spellings fluctuate in the Ptol. papp. (Mayser, i², 1, 216).
[2] χωρί is attested in Call. and inscrr. (*LSJ*, s.v.; Mayser, *ibid.*).

2. Medial σ.

a. Medial σ is occasionally omitted before a stop, especially a dental, or a nasal. Conversely, it is sometimes inserted in the same positions.

1) Omission of σ.

a) Before a dental stop:[1]

Σεβατοῦ (for Σεβαστοῦ) *PMich.* 170.9 (A.D. 49); sim. *POxy.* 1686.1 (A.D. 165)
εὐχαριτῶμεν (for εὐχαριστῶμεν) *BGU* 261.27 (ca. A.D. 105: cf. *PMich.* 202)
ἕκατα (for ἕκαστα) *POxy.* 729.37 (A.D. 137); *StudPal.* xxii, 40.30 (A.D. 150); *SB* 5126 = *StudPal.* xx, 70.20 (A.D. 261); sim. *POxy.* 1685 = *PMerton* 17.13 (A.D. 158); *OMeyer* 66.5 (3rd cent.)
πλεῖτα (for πλεῖστα) *BGU* 602.2 (2nd cent.); *WChr.* 461.22 (early 3rd cent.)
ἐτί (for ἐστί) *PMerton* 114.25 (late 2nd cent.); sim. *PMerton* 46.11 (late 6th cent.)
ἐβάταξαν (for ἐβάσταξαν) *PLond.* 245 = *PAbinn.* 45.12 (A.D. 343)
μιθούς, παράτησων (for μισθούς, παράστησον) *PMerton* 38.6,27 (mid 4th cent.)
εὔταθμα (for εὔσταθμα) *SB* 8262.12 (not later than 5th cent.)
αἰθητήρια (for αἰσθητήρια) *POxy.* 2283.8 (A.D. 586)

b) Before a velar or labial stop:

προγενοῦς (for προσγενοῦς) *PMich.* 283-4.3 (1st cent.)
πρεβ(ύτερος) (for πρεσβύτερος) *BGU* 1614 C.13 (A.D. 69/70); sim. *PPetaus* 119.3-4 (ca. A.D. 185); *PCairMasp.* 151-2.149 (A.D. 570)
γείνωκε (for γίνωσκε) *POslo* 153.11 (early 2nd cent.)
ἀπέχον (for ἀπέσχον) *SB* 8053.4 (A.D. 133); sim. *SB* 7515.705,708 (A.D. 155); *PLBat.* xi, 28.7 (4th/5th cent.: *BL* v, 63); *SB* 5175.8 (A.D. 513); *PAberd.* 34.2 (7th cent.)
ἀπάζεται (for ἀσπάζεται) *POxy.* 1584.30 (2nd cent.)
αἰχάτην (for ἐσχάτην) *POxy.* 902 = *MChr.* 72.11 (ca. A.D. 465)
cf. προκύνημα (for προσκύνημα) *SB* 5803.1, inscr. (n.d.)

c) Before μ:

ποτιμοῦ (for ποτισμοῦ) *POslo* 32.15 (A.D. 1)
βοτανιμοῦ (for βοτανισμοῦ) *PBerlZill.* 10.8 (1st/2nd cent.)
καταχωριμῷ (for καταχωρισμῷ) *PAmh.* 134 = *PSarap.* 94.7, corr. 14 (early 2nd cent.)
προμερισθ(είσας) (for προσμερισθείσας) *SB* 7193 = *PBerlLeihg.* 1, V iii.10; sim. R i.19; sim. *SB* 7196 = *PBerlLeihg.* 4, R ii.8,10; iii.14 (A.D. 164/5)

[1] Contrast στ > σ(σ) above, p. 66.

Σεβάμιον (for Σεβάσμιον) *SB* 7623 = *PCairIsidor.* 2.20 (A.D. 298)
ἐξοδιαμόν (for ἐξοδιασμόν) *PBeattyPanop.* 1.165 (A.D. 298)

2) Insertion of σ (mainly in anticipation of a following σ/ς).

a) Before a dental stop:

ἀνεπισ|δάνιστα (for ἀνεπιδάνειστα) *CPR* 4 = *MChr.* 159.18-19 (A.D. 51/53)
ἀρισθῶμ (for ἀριθμῷ) *BGU* 1095.19,20 (A.D. 57)
μοι στὴν (for τὴν) ὑγεῖαν σου *PAmh.* 133 = *PSarap.* 92.3-4 (early 2nd cent.)
ἐξεστάσῃς (for ἐξετάσῃς) *PAmh.* 79.50 (ca. A.D. 186)
ἀπόσδος (for ἀπόδος) *POxy.* 1761.17 (late 2nd/3rd cent.)
ἑκαστοστῇ (for ἑκατοστῇ) *PStrassb.* 153 = *SB* 8943.9 (A.D. 262/3)
ἐπιτησ|δίους (for ἐπιτηδείους) *PStrassb.* 212.5-6 (early 4th cent.)

b) In other positions:

ἀπέσχεσθαι (for ἀπέχεσθαι) *POxy.* 237 viii.12 with νόμιμα for νόμισμα 22 (A.D. 186)
ὑποσχείριος (for ὑποχείριος) *PHarris* 68 AB.8 (A.D. 225)
λεσπτολάχανα, ὀσψαρῶν (for λεπτολάχανα, ὀψαρίων) *POxy.* 1656.8,10 (late 4th/5th cent.)

Note. The poetic form ὄπιθεν[1] for ὄπισθεν occurs in Byzantine documents: *PCairMasp.* 158.22 (A.D. 568); *StudPal.* iii, 96.4 (7th cent.); *PApoll.* 11.4 (A.D. 705); perhaps also *PLond.* 1418.23 (A.D. 705 ?).

The omission and converse insertion of σ is only partially paralleled elsewhere in the Koine.[2] These phenomena in the papyri represent the simplification of /s/ + consonant clusters.

C. INTERCHANGE OF -ς AND -ν

Final -ς and -ν sometimes interchange.[3] Many of the examples may be the result of scribal error or reflect a confusion of cases or verb forms,[4] but since both /n/ and /s/ tended to be dropped in final position, there is a possibility that these instances represent the interchangeability of 'silent' letters.

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[1] *Il.* Pi. A. (lyr.) (*LSJ*, s.v. ὄπισθεν). Cf. Crönert, 145, n.1. In the papyri, ὄπισθεν occurs in *PSAAthen.* 34.16 (3rd/4th cent.) and *PLond.* 977 (iii, 231-2).23 (A.D. 330).

[2] σ is sts. om. before π or τ in Att. inscrr. (*MS*, 91) and esp. before dentals in Delph. inscrr. (Rüsch, 207). In the Ptol. papp., σ is sts. om. before κ, μ, τ, φ, and most often before θ (Mayser i², 1, 179).

[3] The interchange of medial ν and σ is rare, e.g., ἐντίν (for ἐστίν) *SB* 10277.18 (A.D. 116); περισπανμόν (for περισπασμόν) *PMich.* 486.19 (2nd cent.).

[4] Mayser i², 1, 182-3, so explains parallel exx. in the Ptol. papp.

1. -ς > -ν:

μέχρειν (for μέχρις) τοῦ *PMich.* 263.35-36 (A.D. 35/36)
ἁπλῶν (for ἁπλῶς) μηθέν *PMich.* 276.32, with ἁπλ̣ῶ̣ς 32 (A.D. 47)
ἵνα ... ἔχῃν (for ἔχῃς), τὰ τέκνα αὐτῆν (for αὐτῆς) *PMerton* 63.19,25-26, with τῶν τέκνω<ν> σου 20-21 (A.D. 57)
ἐκ ἐπιστολῆν (for ἐξ ἐπιστολῆς) *PFay.* 117.5 (A.D. 108)
πῶν (for πῶς) θέλις *POxy.* 2150.8-9 (3rd cent.)
[ὅ]πων (for ὅπως) πέμψῃς *PTebt.* 423.17 (early 3rd cent.)
τῆς παρούσης δεκάτην (for δεκάτης) [ἰνδικτίονο]ς *PStrassb.* 148 = *SB* 8752.9-10 (A.D. 472)

2. -ν > -ς:

ἑκατέρα τῶς ἑαυτῶν συνκενῶς (for ἑκατέρας τῶν ... συγγενῶν) *PMich.* 282.9 (1st cent.)
τ[ῶ]ν τρι[ῶν μι]σθώσεως (for μισθώσεων) *PTebt.* 311.37-38 (A.D. 134)
βιβλίως (for βιβλίων) πεμ[π]ομ(ένων) *PAmh.* 69 = *WChr.* 190.3 (A.D. 154)
τοῖς ἔμπροσθες (for ἔμπροσθεν) χρόνοις *SB* 7517.7-8 (prob. A.D. 211/12)
εἰς δαπάνης (for δαπάνην) *POxy.* 1733.3,10,11 (late 3rd cent.)

V. ASPIRATION[1]

In the papyri, π, κ, τ are frequently not changed to φ, χ, θ when they immediately precede (in word-junction or composition) a word or word element which etymologically begins with /h/.[2] Conversely, π, κ, τ are frequently changed to φ, χ, θ before certain words or word elements which etymologically do not begin with /h/. Direct evidence of initial /h/ from the use of a rough breathing is rare.[3]

False aspiration occurs mainly in words in which an aspiration is attested elsewhere in the Koine[4] by analogy with associated words beginning with /h/.[5] Failure to indicate aspiration may have a similar explanation in a few words,[6] but its frequency indicates that initial aspiration was dropped in the speech of many writers of the papyri.

In the following lists, only examples of irregularities are cited; the traditional spelling is more common in every instance.

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[1] Schwyzer i, 218-22, 303-8; Lejeune, § 73, 151, 290-4, cf. 338; Buck, *GD*, § 57-58; *MS*, 85-88; Schweizer, 116-21; Nachmanson, 83-84; Hauser, 59-60; Rüsch, 214-25; Mayser i², 1, 173-7; Crönert, 145-58; *BDF*, § 14, 39.3; Psaltes, 106.

[2] /h/ arose in Gr. from IE /y/ or /s/. It is also found in a few words imitating cries, laughter, etc., in loanwords, and in many analogical formations (Schwyzer i, 303-6; Lejeune, § 73, 151).

[3] E.g., ⊢ου *POxy*. 471.6 (2nd cent.); ⊢ῶν *POxy*. 1765.6 (3rd cent.); ⊢υμῶν, ⊢ορίων *PFay*. 38.5,6 (late 3rd/4th cent.); ⊢ἡμέραν, ἡμεῖ[ς], ⊢ω *POxy*. 122.4,8-9,12 (late 3rd/4th cent.); ⌊ατε, ⌊ας, ⌊ωι, etc. *PHermRees* 2,3,5,6 passim (4th cent.). /h/ was represented by H until the general adoption of the Ionic alphabet in which H = /ε̄/; later ⊢ (the first half of H) was used dialectally to indicate initial aspiration. Modified versions of this symbol were adopted by Alexandrian grammarians and appear frequently in literary papyri. See Schwyzer, i, 145, 147, 218; Buck, *GD* § 4, 57-58; Sturtevant, 69-73.

[4] See esp. Crönert, 146-52, for words in which initial aspiration fluctuates in the Herc. papp., inscrr., and codd. of Koine authors. Cf. Dieterich, 85-86; Kretschmer, *Entst.*, 20-22; Mayser i², 1, 174-6.

[5] E.g., ἔτος (cf. MGr. ἐφέτος) by analogy with ἡμέρα and other aspirated 'time words' (Kretschmer, *Entst.*, 21; Hatzidakis, *Einl.*, 160). Similarly, αὔριον might follow ἡμέρα, ἐνιαυτός the aspirated ἔτος or the numeral ἕν. ἰδεῖν may be the result of analogical levelling with the present ὁρῶ, ὄγδοος after ἕκτος and ἕβδομος, ὀλίγος after ἥττων, ὄνος by analogy with ἵππος, etc.

[6] E.g., ἕκαστος by analogy with ἄλλος, ἵστημι by analogical levelling with unaspirated augmented forms like ἔστησα, εὑρίσκω as if a compd. of εὖ.

A. LOSS OF INITIAL ASPIRATION

1. In word-junction:

μετ' ὅρκου *PMich.* 123 V, IV.13-14,21 (A.D. 45-47)
ἐπ' οἷς *PMich.* 322a.38 (A.D. 46)
  οὐκ οἱ *BGU* 313.3 (Byz.)
ἐπ' ὑποθήκῃ *PFlor.* 81.6 (A.D. 103)
  κατ' ὑπομνηματισμού<ς> *PPrinc.* 124.10 (A.D. 130/1)
  μετ' ὑπογραφέως *POxy.* 911 = *MChr.* 326a.6 (A.D. 233/65)
  οὐκ' ὑπέσχετο, οὐκ' ὑπάρχει *PFouad* 87.6,15 (6th cent.)
τὸ τ' ἕτερον *POxy.* 2874.11-12 (A.D. 108)
  κατ' ἕτερον *POslo* 40.65 (A.D. 150)
  ἐπ' ἑτέρῳ *BGU* 2109.4 (A.D. 165?)
  οὐκ ἑτέρας *PCairMasp.* 20 R.15 (6th cent.)
  ἀπ' ἑτέρων *PRossGeorg.* iv, 1.23 (A.D. 710)
μετ' ὕβρ[εως] *PSI* 1323.9 (A.D. 147/8)
κατ' ἑκάστην ἡμέραν *PMich.* 208.3 (2nd cent.); *PTebt.* 412.2 (late 2nd cent.); 413.3 (2nd/3rd cent.); *PHamb.* 89.2-3 (2nd/3rd cent.); *POxy.* 2977.36 (A.D. 239); *PCairIsidor.* 132.2 (3rd cent.); *PFay.* 130.4-5 (3rd cent.); etc.
  κατ' ἑκάστου *SB* 5126 = *StudPal.* xx, 70.16, sim. 20 (A.D. 261); sim. *PFlor.* 279.14 (A.D. 514)[1]
  ἀπ' ἑκάστου *PLond.* 1339.14 (A.D. 709); 1392.9 (A.D. 710-11?)
οὐκ ὡς *SB* 7616 = *PBon.* 44.3 (2nd cent.); *SB* 7250 = *PMich.* 218.16 (A.D. 296); *PCairMasp.* 4.5 (6th cent.)
ἀπ' ὅλων *PPrinc.* 150 i.21 (2nd cent.)
οὐκ ἵνεκε (for εἵνεκεν) *PPrinc.* 70.8 (2nd/3rd cent.)[2]
οὐκ εὕρηκα *BGU* 38.12-13 (2nd/3rd cent.: *BL* i, 10)
  οὐκ εὗρον *POxy.* 1773.8,12-13 (3rd cent.); *PHarris* 158 V.3 (5th/6th cent.)
  οὐκ ηὗρον *SB* 9616 V.30 (A.D. 550-8?); *PMerton* 46.2 (late 6th cent.)[3]
ἀπ' οἵας *POxy.* 1569.3 (3rd cent.)
ἀπ' ὅτε *PAntin.* 43.21 (late 3rd/4th cent.); *POxy.* 131.12 (6th/7th cent.)
  οὐκ ὅτε *POxy.* 2407.30 (late 3rd cent.)
οὐκ ἁπλῶς *SB* 8246.3 (A.D. 335: *BL* v, 102)
  οὐκ ἅπαξ *POslo* 64.4 (5th cent.)
ἀπ' ἑαυτῶν *PFay.* 136.6 (4th cent.)
οὐκ ἡδέως *PIFAO* ii, 27.6 (late 5th/early 6th cent.)
οὐκ ἡμῖν *PCairMasp.* 89 R b.11 (6th cent.)
ὑπ' ὕλης *PBaden* 65.16 (prob. 8th cent.)

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[1] Sim. once Ptol. papp. (Mayser i², 1, 174) and codd. of Ascl. (Crönert, 147, n. 2).
[2] Sim. codd. of Pastor Hermas, Phlp. Thphr. (Crönert, 147, n. 3).
[3] Sim. once Herc. papp., very freq. codd. of LXX, rarely codd. of J. Orig. Hippol. Nicom. Phlp. etc. (Crönert, 146(-7), & n. 3).

2. In composition:[1]

ἀπήλικι, ἀπήλικος *PMich.* 427.4,17 (A.D. 134)
ἀντίστασθαι, κατιστανομένων *BGU* 747 = *WChr.* 35 ii.10; V.1 (A.D. 139)
μετεστά[ναι *POxy.* 2198.7-8 (2nd cent.)
κατέστακαν (for καθεστάκασι) *PPetaus* 28.10-11 (ca. A.D. 185)
κατίστημι *POxy.* 2474.20-21 (3rd cent.)
ἀποκατίστασθαι *POxy.* 2187.25 (A.D. 304)[2]
ἐπεδρεύοντες *POxy.* 928.5 (2nd/3rd cent.)
μετερμη'νευ'θῆναι *POxy.* 43 R vi.18 (A.D. 295)
ἀπεισύχασα (for ἀφησύχασα) *PCairIsidor.* 70.8 (ca. A.D. 310)[3]
κατυπέγραψα *PCairMasp.* 126.32 (A.D. 541)

B. FALSE ASPIRATION

1. In word-junction:

καθ' ἔτος *PRyl.* 601.11 (26 B.C.); *BGU* 197.13, etc. (A.D. 17); *PMich.* 121 R I, i.4, etc. (A.D. 42); *PTebt.* 302 = *WChr.* 368.19 (A.D. 71/72); *PTebt.* 373.10,14 (A.D. 110/11); *PFouad* 54.9 (A.D. 142 ?); *POxy.* 1127.40 (A.D. 183); *CPR* 47.6 (2nd/3rd cent.); *PCairMasp.* 97 R.38 (6th cent.); *PHamb.* 68.22, etc. (A.D. 550+); *PLond.* 483 (ii, 323-9).55, etc. (A.D. 616); etc.
ἐφ' ἔτη *PMich.* 346a.4 (A.D. 13); *PMich.* 355.2 (1st cent.); *PJand.* 53.5 (A.D. 96/98); *PTebt.* 385.11 (A.D. 117); *PFay.* 95.6 (2nd cent.); *PStrassb.* 198.9 (A.D. 181-3); *BGU* 2041.6 (A.D. 201); *PRyl.* 221.7 (early 3rd cent. ?); etc.; cf. *PDura* 23.8 (A.D. 134)[4]
ἐφ' ἐνιαυτόν *PMich.* 585.29 (A.D. 87); *PLond.* 216 = *WChr.* 192.12 (A.D. 94); *PLond.* 842 (iii, 141).12 (A.D. 140); *POxy.* 502.8-9 (A.D. 164); *POxy.* 1631.5,21 (A.D. 280); *POxy.* 1695.11 (A.D. 360); *PSI* 1108.9 (A.D. 381); *PRein.* 105.3 (A.D. 432); etc.
μεθ' ἐνιαυτόν *PMich.* 554.35 part. rest., 52 (A.D. 81-96)
καθ' ἐνιαυτόν *SB* 5218.7 (A.D. 156); *PCairMasp.* 300.11 (A.D. 527: *BL* iii, 36; iv, 14); *PCairMasp.* 2 ii.3 (A.D. 567: *BL* i, 100); *PApoll.* 42.3,6 (A.D. 703-15); cf. *PColt* 52.6 (early 7th cent.)[5]

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[1] The init. /h/ of the simple form was traditionally retained in compds; cf. combinative forms like ἀφίστημι and the practice of representing the internal /h/ in pre-Ion. alphabet inscrr., e.g., ΕΥΗΟΡΚΟΝ (Schwyzer i, 219; Lejeune, § 291).

[2] Sim. inscrr. and codd. of S. Arist. Plb. LXX, Paus. etc. (Crönert, 146, n. 2).

[3] Sim. inscr. and codd. of J. Paus. etc. (Crönert, 147, n. 6). Cf. B ⲏⲥⲩⲭⲁⲍⲓⲛ and ⲏⲥⲩⲭⲓⲁ (Böhlig, 112; Crum, 632).

[4] Sim. NWGr., Ptol. papp., Herc. papp., inscrr., pap. Arist., and codd. of D.Chr. D.C. etc. (Schwyzer i, 305; Buck, *GD*, § 58c; Mayser i², 1, 174; Crönert, 151 & n. 3; Nachmanson, 84, & n. 2; Hauser, 60).

[5] Sim. Ptol. papp., inscrr., and codd. of J. LXX (Mayser i², 1, 174; Crönert, 151, n. 1).

ἐφ' ἴσον *PJand.* 135.10 (after A.D. 104)
καθ' ἴσον *POxy.* 2909.19 (late 3rd cent.)[1]
ἐφ' ἐλπίδων *PMich.* 466.30 (A.D. 107)[2]
οὐχ ὀλίγων *BGU* 747|= *WChr.* 35 ii.16 (A.D. 139); sim. *PSI* 1526.12 (A.D. 160); *BGU* 72.11-12: *BL* i, 15 (A.D. 191); *PRossGeorg.* iii, 2.10 (A.D. 270: *BL* iii, 156); *PCairIsidor.* 68.13 (prob. A.D. 309/10); *BGU* 909 = *WChr.* 382.17 (A.D. 359); *PCairMasp.* 294.4 (6th cent.); etc.
μεθ' ὀλίγον *BGU* 388 = *MChr.* 91 i.11 (2nd half 2nd cent.); sim. *PFlor.* 176.16-17 (A.D. 256)
ἐφ' ὀλίγῳ *BGU* 1027 = *WChr.* 424 i.15 (4th cent.)[3]
ἐφ' ὄνῳ *PLond.* 307 (ii, 83-84).3 (A.D. 145); etc.
μεθ' ὄνων *BGU* 699.11,14 (2nd cent.)
ο[ὐ]χ ὀκνῶ *BGU* 632.12 (2nd cent.); *PSI* 837.15 (3rd/4th cent.)
οὐχ ὤκνησα *POxy.* 2862.7 (3rd cent.)[4]
οὐχ ἀπῆλθες *BGU* 1675.26 (prob. 2nd cent.)
καθ' ἰδιόγραφον *POxy.* 70.6-7 (A.D. 212/13: *BL* i, 314)[5]
ἐφ' ἀμφόδου *SB* 7989 = *PSI* 1240a.6 (A.D. 222)
οὐχ οἴομαι *PAmh.* i, 3a = *SB* 9557.19 (A.D. 250-85)
ἐφ' ἐξουσίᾳ *PAmh.* 83 = *WChr.* 230.5 (A.D. 303-6)[6]
ὑφ' οὐδενός *PFlor.* 36 = *MChr.* 64.3 (A.D. 312)
οὐχ ἶχον (for εἶχον) *PLond.* 243 = *PAbinn.* 8.19, with οὐκ ἔχις 20-21 (ca. A.D. 346)
οὐχ ἔχω *PLond.* 1729.14, corr. 29 (A.D. 584)
cf. ἀφέχω *PGiss.* 123 descr. (6th cent.)[7]
μεθ' ἐμαυτοῦ *SB* 9135.17 (4th cent.)
ἐφ' ἐμαυ[τ]ὸν *PCairMasp.* 295 ii.4 (6th cent.)
καθ' ἐμαυτόν *PCairMasp.* 312.10 (A.D. 567)
ἀφ' ἑσεαυτοῦ *BGU* 3.20 (A.D. 605)

2. In composition:

ἐφίδῃ *PMich.* 226.38 (A.D. 37); *PFay.* 113.7 (A.D. 100)
ἐφεῖδον *WChr.* 14 iii.2 (A.D. 41-54); *POxy.* 53.9 (A.D. 316); sim. *SB* 6003.7 (A.D. 316); *PSI* 872.6 (6th cent.)

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1 Sim. inscrr., Herc. papp., and codd. of E. Diod. Artem. Arr. Orig. Phlp. etc. (Buck, *GD* §58c; Crönert, 148, & n. 1). Cf. B ϩιcoc, ϩⲩcoc (Böhlig, 111-12; Crum, 632; Wessely, *Lehnwörter* 8, 27).

2 Sim. Herc. papp.and codd. of J. Hippol. Ptol. etc. (Crönert, 150(-1), & n. 5; cf. Mayser i², 1, 176). Cf. SB ϩⲉⲗⲡⲓc (Böhlig, 112; Crum, 632; Wessely, *Lehnwörter*, 8, 25-26; Hopfner, 7).

3 Sim. codd. of J. Orig. Artem. Hermog. (Crönert, 152, n. 4).

4 Crönert, 152, n. 3 cites καθοκνήσας from Vita Euthymii.

5 Sim. inscrr., NT, codd. of Artem. Ph. Arr. Orig. Phlp. Simplic. etc. (Buck, *GD* § 58c; Crönert, 148(-9), n. 2). Cf. S ϩⲓⲇⲓⲱⲧⲏc (Böhlig, 113; Crum, 632; Hopfner, 7).

6 Cf. SB ϩⲉⲝⲟⲩcⲓⲁ (Wessely, *Lehnwörter*, 8, 26).

7 Perhaps by analogy with ἔξω; cf. the converse loss of aspiration in the fut. in codd. of Ph. Orig. Phlp. etc. (Crönert, 147, n. 5).

ἐφιδεῖν *POslo* 95.12, sim. 14 (A.D. 96); *BGU* 647.6 (A.D. 130); *POxy.* 2563.24 (ca. A.D. 170); *POxy.* 51.7 (A.D. 173); *POxy.* 1556.2,3 (A.D. 247); *PSAAthen.* 34.11 (3rd/4th cent.); *POxy.* 896.30 (A.D. 316)

ἐφιδόντα *POxy.* 44 = *WChr.* 275.12 (late 1st cent.); sim. *PLBat.* i, 14.33 (2nd cent.); *PMon.* 14.38 (A.D. 594)

ἀφίδης *PFouad* 54.29 (A.D. 142 ?)

ἐφιδῶ *PFlor.* 156.4 (3rd cent.)[1]

ἐφέτους (sometimes written ἐφ' ἔτους) *SB* 9017 (14).8 (1st/2nd cent.); *StudPal.* xxii, 33.9-10: *BL* iii, 238 (1st cent.); *PMich.* 473.10 (early 2nd cent.); *SB* 8088.5 (2nd cent.)[2]

ἐφέτος (sometimes written ἐφ' ἔτος) *POxy.* 1299.8: *BL* iii, 135 (4th cent.); *PJand.* 102.18-19 (6th cent.); sim. *SB* 10269.4 (6th cent.)

ἐφέτια *PLBat.* vi, 3.23 (A.D. 92); sim. *PMich.* 252.2-3 (A.D. 26-27); *SB* 9618.27 (A.D. 192)

ἐφετινοῦ *POxy.* 1482.12 (2nd cent.); sim. *PCairMasp.* 141 vi V.9, etc. (late 6th cent. ?)

ἐφαύριον *PRyl.* 441.4-5 (3rd cent.)[3]

μεθαύριον *POxy.* 1844.4,5 (6th/7th cent.)

καθερχομέν[η *PCornell* 39.5 (3rd/4th cent.); cf. *POxy.* 2768.32 (late 3rd cent.)

cf. ἐφιορκοῦντι (for ἐπιορκοῦντι) *POxy.* 1453.28-29 part. rest. (30/29 B.C.); *BGU* 543.13-14 (27 B.C.); *POxy.* 240.8 (A.D. 37); *PMich.* 122 i.33 (A.D. 49); *SB* 7463.11 (A.D. 51); *PVindobWorp* 16.13-14 (A.D. 53); *POxy.* 260 = *MChr.* 74.16 (A.D. 59); etc.

ἐφιορκοῦσι *SB* 7174 = *PMich.* 233.21 (A.D. 24: *BL* v, 69); *PSI* 901.15 (A.D. 46); *PFouad* 18.17 (A.D. 53); *PAmh.* 68 = *WChr.* 374.35 (A.D. 81-96)

ἐφιορκίας *PMarmarica* iv.20 (A.D. 190/1 ?); *PWürzb.* 20.13 (Arab.)[4]

Loss of aspiration and false aspiration are found much more frequently than the interchange of aspirates and voiceless stops in other positions, precluding the probability of more than a few examples being instances of the interchange of stops. Although many examples of false aspiration and some examples of the loss of aspiration can be explained by analogy with associated aspirated words, other examples defy this explanation and point to a loss of initial aspiration

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[1] Sim. inscrr., Ptol. papp., and codd. of Diod. J. Hippol. Hsch. Simplic. etc. (Buck, *GD* § 58c; Mayser i², 1, 175-6; Crönert, 149, n. 1).

[2] For the spelling as one word, see Kapsomenakis, 65.

[3] So Ptol. papp. (Mayser i², 1, 174).

[4] The aspiration is likewise anticipated in this word in inscrr. and codd. of Arist. LXX, NT, J. Stob. etc. (Buck, *GD*, § 58c; Crönert, 153; Schweizer, 118; Rüsch, 220-1).

in the speech of many writers. Aspiration has not survived into Modern Greek. It was lost during the period of the Koine.[1] In Egypt, aspiration was lost in some Coptic dialects in Byzantine times.[2] Aspiration was often confused in Greek loanwords in Coptic.[3]

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[1] Cf. Lejeune, § 294; Sturtevant, 72-73.

[2] Loss of /h/ is reflected in Theban docc. (6th/7th cent.) and prob. is characteristic of the A dialect area (Worrell, 109-10, 116, 117, 121). It also tends to be lost in the B dialect (cf. Vergote, *Gram.* Ia, 15). See further Vergote, *Phonétique*, 64-67.

[3] In addition to examples above, cf. B ϩⲁⲣⲁ = ἄρα, S ϩⲉⲑⲛⲟⲥ = ἔθνος, S ϩⲉⲧⲁϩⲉ = ἐτάζειν, B ϩⲓⲣⲏⲛⲏ = εἰρήνη, ϩⲓⲕⲱⲛ = εἰκών, ϩⲉⲛⲁⲧⲟⲛ = ἔνατον, B ϩⲏⲇⲏ = ἤδη, B ⲟⲙⲱⲥ = ὅμως, B ⲟⲙⲟⲗⲟⲅⲓⲛ = ὁμολογεῖν, B ⲁⲅⲓⲟⲥ = ἅγιος, etc. (Wessely, *Lehnwörter*, 8; Hopfner, 7; Böhlig, 111-13; Crum, 632).

VI. CONSONANTS IN COMBINATION

A. ξ[1]

1. The monograph ξ, representing the consonant cluster /ks/, is rarely found in the preposition ξύν (σύν):[2]

ξυγγραφεύς *BGU* 636.23 (A.D. 20)
ξυγγενῶν, ξυνγενείας *POxy*. 2713.4,11 (ca. A.D. 297)

2. ξ is frequently replaced by phonetically equivalent orthographies to represent the consonant cluster /ks/[3] or itself replaces κσ:

a. ξ > κσ/κς:

ἐκς (for ἐξ) *SB* 10536.19 (A.D. 25/26); *PMich*. 259-300 passim 14 times (A.D. 33-48); *PMich*. 621.9 (A.D. 47); *PPrinc*. 147.14 (A.D. 87/88); *PJand*. 9.8 (2nd cent.); etc.
ἐκσαλλοτριοῖν (for ἐξαλλοτριοῦν) *PMich*. 321.22 (A.D. 42)
ἐκσίστασθαι (for ἐξίστασθαι) *PTebt*. 380.19 (A.D. 67)
ἐκσοικονομῆσαι (for ἐξοικονομῆσαι) *OTait* 2528.4 (ca. A.D. 130)
ἐκπλέκσε (for ἐκπλέξαι) *PMich*. 211.5-6 (2nd/3rd cent.)
ἐκσουσίαν (for ἐξουσίαν) *BGU* 94.16 (A.D. 289)
ἐκσαγογή (for ἐξαγωγή) *SB* 10529 B.16 (n.d.)
cf. ἐκσκέπ(τορσι) *exceptor* *POxy*. 43 R ii.26 (A.D. 295); sim. *POxy*. 1139.2 (4th cent.)

b. κσ (arising through composition or word-junction) > ξ:

ἐξυμφώνου (for ἐκ συμφώνου) *PMich*. 285-6.5 part. rest. (1st cent.); *PMich*. 554.12 (A.D. 81-96); *PMich*. 188.10 (A.D. 120); *PMich*. 189.14

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[1] Schwyzer i, 211, 329; Lejeune, § 54-56; *MS*, 92-93; Schweizer, 115-16; Nachmanson, 87-88; Hauser, 63; Mayser i², 1, 184-5; Psaltes, 133-4.

[2] ξύν is preserved only in literary texts among the Ptol. papp. where it is freq. replaced by σύν (Mayser i², 1, 184). It is found in codd. of Plb. Str. Onos. Polem. Plu. etc. (Crönert, 95, n. 1).

[3] Cf. sim. spellings in Ptol. papp. (Mayser i², 1, 184) and in codd. of Luc. LXX (Crönert, 95, n. 3).

(A.D. 123); *PHamb.* 62 = *PLBat.* vi, 23.9 (A.D. 123); *CPR* 191.9; 197.8 (2nd cent.); *PMich.* 428.4 (A.D. 154); *PLond.* 334 (ii, 211-12).19 (A.D. 166); *PHamb.* 15.8 (A.D. 209); *BGU* 917.8 (A.D. 348)

ἐξτάσεως (for ἐκστάσεως) *POxy.* 2873.18 (A.D. 62)

ἐξτροφῇ (for ἐκστροφῇ) *SB* 7363 = *PLBat.* vi, 38.10-11 (A.D. 168)

ἐξοῦ (for ἐκ σοῦ: *BL* i, 315) *POxy.* 91.18 (A.D. 187)

ἐξεσυρμέναι (for ἐκσεσυρμέναι) *PMarmarica* vii.47; sim. viii.22 (A.D. 190/1 ?)

ἐξῆς (for ἐκ σῆς) *POxy.* 2713.24 (ca. A.D. 297)

ἐξηνυθείας (for ἐκ συνηθείας) *POxy.* 1860.10 (6th/7th cent.)

cf. ἐξαλεύων (for ἐκσαλεύων) *SB* 4324.16, mag. (n.d.)

c. ξ > κζ:[1]

ἐκζ ὔκου (for ἐξ οἴκου) *PMich.* 280.5 (1st cent.); *PMich.* 308.5 (1st cent.)

d. ξ > κξ:[2]

ἐκξήκοντα (for ἑξήκοντα) *PLond.* 890 (iii, 167-8).7,12 (6 B.C.)

ἐκξ (for ἐξ) *BGU* 189 = *MChr.* 226.5 (A.D. 7); *SB* 5243.6 (A.D. 7); *PMich.* 318-20.6 (A.D. 40); *BGU* 2044.15 (A.D. 46); *PMich.* 300.9 (1st cent.); *OWilb-Brk.* 29.2 (A.D. 75); *PMich.* 201.15 (A.D. 99); *PLond.* 1164 (iii, 154-67).20 (A.D. 212)

ἐκξουσίαν *POxy.* 259 = *MChr.* 101.18 (A.D. 23); *POxy.* 2729.40 (4th cent.)

ἀνεκξαλλοτρίωτον, ἐκξοικονομήσεως (for ἀνεξ-, ἐξ-) *CPR* 220.10 (1st cent.)

ἐκξενίκῃ (for ἐξενέγκῃ) *PMich.* 201.7 (A.D. 99); sim. *PFay.* 138 = *WChr.* 95.3 (1st/2nd cent.)

ἐκξέρχομαι (for ἐξέρχομαι) *PMich.* 204.8 (A.D. 127); sim. *PHamb.* 39 G ii.13 (A.D. 179)

ἐκξῆλθες (for ἐξῆλθες) *POxy.* 528.7 (2nd cent.)

ἐκξωδιασθῇ (for ἐξοδιασθῇ) *PAmh.* 135 = *PSarap.* 96.19 (A.D. 129 ?)

πράκξεως (for πράξεως) *PStrassb.* 256.10 (A.D. 132)

ἀκξιῶ (for ἀξιῶ) *BGU* 1044.10 (4th cent.)

ἀκξιοθίς (for ἀξιωθείς) *PMon.* 1.59 (A.D. 574)

ἐκξάκτορος (for ἐξάκτορος) *PLBat.* ii, 13 i.7 (4th cent.)

ἀπότεκξιν (for ἀπόδειξιν) *PCairMasp.* 286.8 (A.D. 527/8)

cf. φύλακξον (for φύλαξον) *PMich.* 155 = *PGM* 71.6 (2nd cent. ?)

Ἀβράσακξ (for Ἀβράσαξ) *POxy.* 1566 = *PGM* 81.4 (4th cent.)

The spelling κξ for ξ represents the orthographic doubling of the first element of the cluster, equivalent to the gemination of single stops[3] and parallel to the

[1] For the interchange of σ and ζ see above, pp. 120-4.

[2] There are 4 exx. of this variation in the Ptol. papp. (Mayser i², 1, 184).

[3] See below, pp. 160-2.

strengthening of an aspirated stop by prefixing the first element,[1] where there was likewise no corresponding doubling in speech.

e. ξ > ξσ/ξς:[2]

ἐξς (for ἐξ) *PSI* 1051.11 (A.D. 26)
πράξσω (for πράξω) *BGU* 602.10 (2nd cent.)
ἐξσόδ[ου] (for ἐξόδου) *PAntin.* 96.13 (6th cent.)
cf. also ξσ representing Lat. *x* in transcriptions of names and loanwords:
Σέξστου (for Σέξτου *Sextus*) *PHamb.* 30.5,7 with Σέκστου 31 (2nd hand) (A.D. 89); *PLBat.* ii, 16.3 (2nd/3rd cent.); etc.
Ἐξσπεδείτου (for Ἐξπεδίτου *Expeditus*) *PBerlLeihg.* 10.2 (A.D. 120)
ἐξσκουσᾶτον (for ἐξκουσᾶτον *excusatum*) *PAntin.* 33.37 (A.D. 346 ?)

This spelling represents the orthographic doubling of the second element of the cluster.

f. κσ (arising through composition or word-junction) > ξσ:

ἐξστάσεως (for ἐκστάσεως) *PMich.* 121 V, VIII.14 (A.D. 42); *PMich.* 338.7 (A.D. 45)
ἐξσυμφώνου (for ἐκ συμφώνου) *StudPal.* xxii, 31.11 (A.D. 155)
ἐξσφραγίσματος (for ἐκσφραγίσματος) *POxy.* 1882.15 (ca. A.D. 504)

3. ξ is replaced by ζ in ὄζους (for ὄξους) *POxy.* 2190.62 (late 1st cent.)[3]

B. ψ[4]

The monograph ψ, representing the consonant cluster /ps/, is sometimes replaced by phonetically equivalent orthographies.

1. ψ > πσ:

γύπσος (for γύψος) *SB* 8030 = *PMich.* 245.11,31-32, with γύψος 19 (A.D. 47)
βάπσαι (for βάψαι) *SB* 9867.10 (3rd cent.)
cf. the converse (after syncope) in ἐψάταις (for ἐπιστάταις) *PMich.* 204.4 (A.D. 127); sim. *POxy.* 1299.14 (4th cent.)

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[1] See above, pp. 100-1.
[2] Cf. Buck, *GD*, § 89.1 for similar spellings in Corinth. Rhod. Ion. Boeot. etc.
[3] Prob. purely orthographic; cf. parallels in Schwyzer i, 329; Mayser i², 1, 184. No parallel interchange of ξ and σ (*MS*, 92; Rüsch, 225; Mayser i², 1, 184) is found in Rom. and Byz. papp.
[4] Schwyzer i, 211, 328-9; Lejeune, § 54-56; *MS*, 93; Nachmanson, 86; Mayser i², 1, 185.

2. ψ > πψ:

γράπψον (for γράψον) *StudPal.* xx, 107.3,4 (twice), 5 (4th cent.)
ἀπψῖδος (for ἀψῖδος) *POxy.* 1957.12 (A.D. 430)

3. ψ > ψσ/ψς:

ψσελίων (for ψελίων) *PMich.* 343.4 (A.D. 54/55)
cf. Λαῖλαψς (for Λαῖλαψ) *SB* 168.1-2, mag. (n.d.)

These orthographic variants parallel those of ξ above.

C. ρρ/ρσ[1]

The inherited /-rs-/ cluster occurs in very few words in Roman and Byzantine papyri, mainly in the verb θαρρῶ and the adjective ἄρρην and its derivatives. Both -ρρ- and -ρσ- spellings are found in forms of these words, reflecting the diverse dialectal heritage of the Koine[2] rather than actual assimilation in speech (cf. the parallel existence of -σσ- and -ττ- spellings, where assimilation is not a factor). The prevalence of the -ρρ- spelling points to the influence of Atticism in the Roman and Byzantine periods.

1. Forms of θαρρῶ are usually spelled with -ρρ-, but the noun is spelled with -ρσ-.[3]

a. -ρρ-:

θαρρῶ *PSI* 717.7 (2nd cent.); *OMich.* 91.10 (late 3rd cent.); *POxy.* 1491.3 (early 4th cent.); *PHermRees* 6.19 (4th cent.); *PCairMasp.* 151-2.248 (A.D. 570)
θαρρεῖ *POxy.* 1492.15 (late 3rd/early 4th cent.)
θαρροῦμεν *PLond.* 891 = *WChr.* 130.12-13 (4th cent.)
θαρρῇ *POxy.* 237 viii.17 (A.D. 186)

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[1] Schwyzer i, 284-6 (cf. 308-23); Lejeune, § 108-10, 120; Buck, *GD* § 79-80; *MS*, 99-100; Schweizer, 125; Nachmanson, 94-95; Hauser, 63-64; Rüsch, 243-5; Mayser i², 1, 194-6; Crönert, 133-4; *BDF*, § 34.2; Psaltes, 90.

[2] Assimilation to /-rr-/ was regular in Att. West Ion. and NWGr. exc. where the influence of analogy was strong, but in other dialects the /-rs-/ cluster was generally preserved (Schwyzer, i, 284-5). In other than intervocalic position, the /r/ or /s/ was usually lost (Lejeune, § 110, 120). Both -ρρ- and -ρσ- spellings are found in MGr. (Thumb, *Hell.*, 77-78; Schwyzer i, 285).

[3] Att. influence predominates in words specifically Att. or common in Att. prose; thus θαρρῶ, but non-Att. θάρσος (cf. Att. θράσος) (Debrunner, *Geschichte*, 107). But only the -ρσ- spelling is found in the Ptol. papp. (Mayser i², 1, 195). Cf. MGr. θαρρῶ, θάρρος, but θράσος, θρασύς (Kykkotis, s.vv.).

θαρρείτω *POxy.* 1587.19 (late 3rd cent.)
θαρρῶν *POxy.* 1665.11 (3rd cent.); *POxy.* 1468.9 (ca. A.D. 258); *PRyl.* 696.2 (late 3rd cent.); *SB* 7205.4 (late 3rd cent.); *PCairGoodsp.* 15.19 (A.D. 362); *PCairMasp.* 68.9 (1st half 6th cent.); etc.
καταθαρρῶν *SB* 7241.22 (Arab.)
θαρροῦσα *CPR* 232.23 (2nd/3rd cent.); *CPR* 233 = *WChr.* 42.5 (A.D. 314)
θαρροῦντες *POxy.* 1347 descr. (3rd cent.); *PCairIsidor.* 75.10 part. rest. (A.D. 316)
ἐθάρρησεν *POxy.* 237 v.6 (A.D. 186)
ἐθάρρη (for ἐθάρρησα) *SB* 9026.6 (2nd cent.)
τεθαρρηκαίναι (for -κέναι) *POxy.* 68 = *MChr.* 228.19 (A.D. 131); corr. *PMon.* 6.41 (A.D. 583)
τεθαρρημένως *PMichael.* 16.9 (2nd/3rd cent.)
καταθαρηθῆναι *POxy.* 138.17 (A.D. 610/11)

b. -ρσ-:

θαρσῶ *SB* 7656.5 (Byz.)
θάρσι (for θάρσει) *PLond.* 239 = *PAbinn.* 31.15 (ca. A.D. 346)
cf. θάρσει *SB* 8370.3, inscr. (A.D. 146); *SB* 5939.4, inscr. (n.d.)
θαρσῶν *BGU* 1080 = *WChr.* 478.14 (3rd cent.); *PAbinn.* 50.18 (A.D. 346); *PLond.* 1836.15 (4th cent.); *SB* 7656.6 (Byz.)
θαρσήσῃ *POxy.* 1101.18 (A.D. 367-70)

c. The noun θάρσο(υ)ς is attested in *PCairMasp.* 158.16 (A.D. 568).

2. Forms and derivatives of ἄρρην are more frequently spelled with -ρρ-, especially after the second century.[1]

a. -ρρ-:

ἄρρενο(ς) *PMich.* 243.5 (A.D. 14-37); sim. *StudPal.* i, 71. 445 (A.D. 72/73); *BGU* 468.9 (A.D. 150); *PHamb.* 33 ii.3, etc. (2nd half 2nd cent.); etc.
ἄρρενα *PSI* 38.6 (A.D. 101); *PMich.* 551.18 (A.D. 103); *SB* 6996.13 (ca. A.D. 127); *PStrassb.* 250b.4 (A.D. 137); *PStrassb.* 215.2 (2nd cent.); *BGU* 413 = *MChr.* 263.7 (A.D. 219); *POslo* 111.124, 292 (A.D. 235); *PCairIsidor.* 84.8 (A.D. 267); *BGU* 13 = *MChr.* 265.4 (A.D. 289); *PMerton* 106.9 (late 3rd cent.); *PBerlLeihg.* 21.6 (A.D. 309); etc.

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[1] The -ρσ- spellings predominate in the Ptol. papp., LXX, and NT (Mayser i², 1, 195; *BDF*, § 34.2), but the -ρρ- and -σσ- spellings fluctuate in Str. (Crönert, 133, n. 1) and in mag. papp., e.g., ἄρρης *PGM* 4.361,370, with ἄρρην 348, ἄρρενος 1092,1101, etc., ἀρρενικός 297-8; but ἄρσενα 298, ἄρσενος 65, etc., ἀρσενικόν 907, ἀρσενικοῦ 2518 (4th cent.); ἀρρενικοῦ *PGM* 36.270, with ἀρσενικῇ 83, etc. (4th cent.). Cf. MGr. ἄρρην and ἀρσενικός (Kykkotis, s.vv.).

ἄρενα *POxy.* 2846.8 (2nd half 1st cent.); *SB* 6001.4 (A.D. 179); *SB* 9441 = *PMed.* 84.4 (4th cent.)

ἄρινα *OMich.* 89.3,5, with ἄρρινα 6 and sim. 7 (4th cent.)

ἄρρενον *SB* 7607 = *PSAAthen.* 20.14 (A.D. 111); *BGU* 88.6 (A.D. 147)

ἄρενον *SB* 9214.12 (A.D. 311)

ἀρρένων *CPR* 28 = *MChr.* 312.12 (A.D. 110); *PJand.* 137.12,25 (1st half 2nd cent.); *PFlor.* 382.86 (A.D. 222/3); *PRyl.* 198.4 (3rd cent.)

ἄρρεσι *PFouad* 25 R ii.20 (2nd cent.)

ἄρρενας *SB* 7365.69 (A.D. 114: cf. *PMerton* 15); *PFlor.* 278 ii.6, etc. (mid 3rd cent.); *SB* 9829.8-9 (3rd cent.)

ἀρρενικόν *POxy.* 37 = *MChr.* 79 i.7 (A.D. 49)

ἀρρενικ[οῦ *POxy.* 2790 ii.9, horoscope (A.D. 257)

ἀρρενικῷ *POxy.* 1209.16 (A.D. 251-3)

ἀρρενεικά *PThead.* 9.9 (4th cent.); sim. *PAmh.* 153.16,17 (6th/7th cent.)

ἀρρενικῶν *BGU* 837.26-27 (A.D. 609)

ἀρρενικοῖς *PMich.* 350.14 (A.D. 37)

b. -ρσ-:

ἄρσενι *PMich.* 278-9.3 (ca. A.D. 30)

ἄρσενα *POslo* 160.6 (2nd half 3rd cent.)

ἄρσενον *POxy.* 744.9-10 (1 B.C.); *StudPal.* xxii, 20.29 (A.D. 4); *PMich.* 121 R I.iii (A.D. 42); *SB* 7356 = *PMich.* 203.6 (A.D. 98-117); sim. *PSI* 785.5,16 (A.D. 93)

ἄρσεν[ες] *BGU* 826.5 (2nd/3rd cent.)

ἀρσένω(ν) *PStrassb.* 24 = *PSarap.* 52.25, etc. (A.D. 118)

ἀρσένοις *PMich.* 326.49 (A.D. 48)

ἄρσενας *SB* 4516 part. = *PSarap.* 3.5 (A.D. 119)

ἀρσένους *PPetaus* 85.7 (A.D. 185)

ἀρσένιον *PGiss* 77.9 (ca. A.D. 117); sim. *BGU* 1668.12 (early Rom.)

ἀρσενικοῦ *WO* 1601.2 (A.D. 114)

ἀρσεν[ι]κῷ *PFlor.* 50.62 (A.D. 268)

ἀρσενικόν *POxy.* 38 = *MChr.* 58.7 (A.D. 49-50); sim. *POxy.* 1216.14-15 (2nd/3rd cent.)

ἀρσενικά *POxy.* 832 descr. (16/15 B.C.); *POxy.* 741.8 (2nd cent.); *SB* 8086.7 (A.D. 268); *SB* 8087.6 (ca. A.D. 279); etc.

ἀρσενικῶν *PMich.* 620.147,150, with ἀρρενικῶν etc. 272,284,308 (A.D. 239/40)

cf. ἄρσης, ἀρσενικά *POxy.* 465.147,149, astrol. (late 2nd cent.)

3. πυρρός and its derivatives are found only in the -ρρ- spelling.[1]

[1] Cf. -ρρ- Att. Ion., -ρσ- Trag. Plu. (*LSJ*, s.v.). Only the -ρρ- spelling is found in the Ptol. papp. (Mayser i², 1, 196), in Delph. inscrr. (Rüsch, 244-5), and in mag. papp.: πυρράν *PGM* 7.890 (3rd cent.); πυρροῦ *PGM* 13.309 (A.D. 346); πυρρόν *PGM* 4.808, with πυρροῦ 2899 (4th cent.).

πυρά' *PLond.* 890 (iii, 167-8).5 (6 B.C.)
πυρόν *PLond.* 839 = *PSarap.* 11.6 (A.D. 128)
πυρράν *StudPal.* xxii, 30.6 (A.D. 138-61)
πυρροῦ *BGU* 468.9, sim. 24 (A.D. 150); *POxy.* 922.8 (late 6th/early 7th cent.)
πυρρόχρους *PRyl.* 134.6 (A.D. 34); *PRyl.* 140.12 (A.D. 36)
πυρρόχρομον (for -χρωμον) *SB* 9701 = *PSarap.* 10.4 (A.D. 124)
prob. also φυράν (for πυρ<ρ>άν) *PLond.* 909a (iii, 170-1).6 (A.D. 136); *PLond.* 1132b (iii, 141-2).5 (A.D. 142); *PGen.* 48 = *PAbinn.* 60.8 (A. D. 346)
φυρρήν (for πυρράν) *PVindobWorp* 9.5 (A.D. 158)
φυρᾷ *BGU* 100.4 (A.D. 159)

4. κορσᾶτες is found in *BGU* 9 iv.15 (late 3rd cent.).[1]

5. The non-Greek βύρσα and its derivatives retain the -ρσ- spelling regularly as even in Attic, e.g., βύρσας *POxy.* 1057.3 (A.D. 362); βυρσέως *PFay.* 121.15 (ca. A.D. 100); βυρσῶν *PBeattyPanop.* 1.379, etc. (A.D. 298).

6. The non-Attic χέρσος and its many derivatives retain the -ρσ- spelling.[2]

7. Loanwords (Πέρσης) and words in which -ρσ- arises in word formation (ἄρσις, κάθαρσις) or inflection (χερσίν) retain -ρσ- as regularly in Attic; a sporadic exception is πρακτῆρρι (for πρακτῆρσι) *POxy.* 2235.19 (ca. A.D. 346).

D. σσ/ττ[3]

The fluctuation between -σσ- and -ττ- likewise reflects the dialectal heritage of the Koine.[4] Non-Attic words appear only in -σσ-, e.g., feminine nouns in -ισσα.[5] The multiplicative numerals δισσός, τρισσός, etc., are spelled only with -σσ-,[6] as is βυσσός, but other words are found in both spellings.[7] Forms in -ττ-

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[1] Cf. Att. κουρεύς by compensative lengthening (Schwyzer i, 285).

[2] Cf. χέρσος Trag., χέρρος Att. inscrr. 451-338 B.C. (*LSJ*, s.v.; *MS*, 99).

[3] Schwyzer i, 317-22; Lejeune, §79-90; Buck, *GD*, §81-82; *MS*, 101-2; Schweizer, 125-6; Nachmanson, 95-97; Hauser, 64-65; Rüsch, 245-8; Mayser i², 1, 196-8; Crönert, 134-5; *BDF*, §34.1; Psaltes, 90-91.

[4] Att. along with Boeot. Cret. and Eub. (partially) shows -ττ- or τ- (from *κj, *χj, *τϜ, and, in Att. under certain conditions only, *τj, *θj), except in loanwords, hieratic words, names of non-Att. places or officials, etc., while Ion. and the other dialects show -σσ- and σ- (Schwyzer, Lejeune, Buck, *ibidd.*; Debrunner, *Geschichte*, 107).

[5] A suffix of post-classical origin: see Schwyzer i, 475; Palmer, 93; *BDF*, §111.1.

[6] Cf. Att. διττός, Ion. διξός, etc. (*LSJ*, s.vv.).

[7] In initial position, normally only σ- occurs, e.g., σήμερον passim, but τήμερον is read in *PBerlZill.* 4.13 (4th cent.).

predominate in Byzantine times. Words which appear only in -ττ- are words which are specifically Attic or later formations or loanwords, e.g., πιττάκιον, ὁλοκόττινος.

1. Numerals and numerical adjectives.

a. τέσσαρες normally appears with -σσ-, but forms in -τ(τ)- are found sporadically:[1]

τέτ]ταρα *SB* 10211.3 (1st/2nd cent.)
τέταρσι (for τέτταρσι or τέτρασι?) *PSI* 1028.10 (A.D. 15)
τέτταρσι *PLond.* 994 (iii, 259).11 (A.D. 517)
τέτρασι *SB* 4284.9 (A.D. 207); *PSI* 1126.9 (3rd cent.)

b. περισσός fluctuates between the two spellings, with σσ predominating:[2]

περισσόν *SB* 6823.11 (A.D. 41-54); *WChr.* 238 = *PBrem.* 2.4 (ca. A.D. 117); *BGU* 1210.230 (2nd cent.); *BGU* 417.22 (2nd/3rd cent.); *SB* 7993 = *PSI* 1333.21 (3rd cent.); *PMichael.* 38.3 (6th cent.)
περισσῆς *POxy.* 1467.15 (A.D. 263)
περισσοῦ *POxy.* 140 = *WChr.* 438.22 (A.D. 550)
περισσά *PLond.* 131 R = *SB* 9699.192,195 (A.D. 78-79); *BGU* 326 ii.9 (A.D. 194)
περισσῶν *PTebt.* 488 descr. (A.D. 121/2); *PTebt.* 423.15 (early 3rd cent.)
περισῶς *PAmh.* 132 = *PSarap.* 81.2 (early 2nd cent.); sim. *PLBat.* vi, 15.142 (before A.D. 114/15); *PGiss.* 25.12 (ca. A.D. 117); *PFlor.* 127.22-23 (A.D. 256); etc.
περισσότερον *PMich.* 243.7 (A.D. 14-37); 202.13 (A.D. 105); 203.27 (A.D. 98-117); sim. *SB* 9450.1 (2nd/3rd cent.); *PFlor.* 127.22-23 (A.D. 256); etc.
περιττόν *PFay.* 117.23-24 (A.D. 108); *SB* 7347.32 (2nd cent.); *POxy.* 1070.16 (3rd cent.); *PGrenf.* ii, 112.10 (A.D. 577?)
περιττοῦ *PLond.* 1676.21 (A.D. 566-73); *SB* 7241.36 (A.D. 697/712); etc.
περιττά *PRyl.* 653.26 (A.D. 321)

2. Comparative adjectives. θάσσων appears exclusively with -ττ-, κρείσσων nearly so, while ἥσσων and ἐλάσσων fluctuate between -σσ- and -ττ-.

a. θάσσων:

θᾶτ[τον *POxy.* 2104.8 (A.D. 241?)
θᾶττον *POxy.* 122.6 (late 3rd/4th cent.)

b. κρείσσων:

κρείσσονα *POxy.* 1062.5 (2nd cent.)

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[1] See further Morphology IV A 4. A few -ττ- spellings occur in the Ptol. papp. (Mayser i², 1, 198).

[2] Only -σσ- is found in the Ptol. papp. and NT (Mayser i², 1, 197; *BDF*, § 34.1).

κρείττονα *POxy.* 2680.24-25 (2nd/3rd cent.); *POxy.* 1676.15-16 (3rd cent.)
κρείττονος *PLond.* 1928.3 part. rest. (mid 4th cent.); *SB* 8003.3 (4th cent.); *PCairMasp.* 89 V.13 (6th cent.); 6 V.12 (ca. A.D. 567); 294.13 (Byz.)
κρείττονι *SB* 9218.18,21 κριτ- (A.D. 319/20); *PCairMasp.* 151.67 (A.D. 570); *POxy.* 128.15 abbrev. (6th/7th cent.)

c. ἥσσων:[1]

ἧσσον *PMich.* 262.31 (A.D. 35/36); *PAlexGiss.* 69.6 (1st cent.); *SB* 8034.33 (A.D. 52); *POxy.* 2973.32 (A.D. 103); *PMich.* 555-6.21 (A.D. 107); *CPR* 10 = *MChr.* 145.10 (A.D. 322/3); *PFlor.* 96.4,11 (A.D. 337); *PCairGoodsp.* 13.14 (A.D. 341); etc.
ἡσσόνων *PSI* 697.7 (2nd cent.)
ἧττον *PLond.* 853a = *PSarap.* 98.4 (early 2nd cent.); *PGissBibl.* 20.6 (1st half 2nd cent.); *POxy.* 237 v.29 (A.D. 186); *POxy.* 1070.15 (3rd cent.); *StudPal.* v 119 V, 3 = *WChr.* 158.20 (A.D. 267); *PBeattyPanop.* 2.70 (A.D. 300); *PAmh.* 141 = *MChr.* 126.13 (A.D. 350); etc.
ἡττόνων, ἥττονι *BGU* 1210.82;112,148 (2nd cent.)

d. ἐλάσσων.[2]

1) The adjective:

ἔλασσον *PMilVogl.* 24.9 -λλ- (A.D. 117); 26.7 (A.D. 127/8); *POxy.* 708 = *WChr.* 432.7 (A.D. 188); *PPrinc.* 60.10 (2nd/3rd cent.)
ἐλάσσω *PRyl.* 208.23,29 (2nd cent.)
ἐλάσσονος *PAmh.* 70 = *WChr.* 149.12 (A.D. 114-17); *PCairMasp.* 97 R.52 (6th cent.); etc.
ἐλασσόνων *PLond.* 1164 (iii, 154-67), h. 7,25 (A.D. 212); *BGU* 1663.7 (3rd cent.)
ἐλασσοδαφίας *PRyl.* 677.9,13, with ἐλλατουμένου (*sic*) 11 (A.D. 14-37)
ἔλαττον *SB* 7174 = *PMich.* 233.17 (A.D. 24: *BL* v, 69); *PMich.* 300.5 (1st cent.); *POxy.* 2857.21 (A.D. 134); *POxy.* 1100.4 (A.D. 206); *PStrassb.* 171.7 (early 3rd cent.); *SB* 9293.11 (A.D. 572); *PLBat.* xi, 10.15 (6th cent.); *SB* 9085 iii.15 (6th/7th cent.); etc.
τοὔλαττο[ν *POxy.* 471.45 (2nd cent.)
ἐλάττονος *PJand.* 93.9 (2nd cent.); *SB* 9253.9 (early 4th cent.)
ἐλάττονι *POxy.* 237 viii.11 (A.D. 186); *PPrinc.* 119.35 (ca. A.D. 325: *ZPE* 8, 15)

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[1] ἧττον is attested only once in the Ptol. papp. where ἧσσον is normal (Mayser i², 1, 198).
[2] -ττ- spellings are freq. in the Ptol. papp. but much less common than -σσ- (Mayser i², 1, 197).

2) The late noun derivative ἐλάσσωμα[1] appears with -σσ- in Roman papyri, -ττ- in Byzantine:[2]

ἐλασσώματος *PLond.* 260 (ii, 42-53).57 (A.D. 72/73); *BGU* 20.8 (A.D. 141/2); *BGU* 571.2 abbrev. (2nd cent.); *OTait* 1853 (2nd cent.); etc.
ἐλασσώματα *PMerton* 11.13-14 (A.D. 39/40)
ἐλαττώματος *PMon.* 9.16 (A.D. 585); 11.12 (A.D. 586); 14.62 (A.D. 594); *SB* 5112.16 (A.D. 618?); etc.

3) The denominative verb ἐλαττόω, specifically an Attic derivative,[3] appears usually in -ττ-:[4]

ἐλαττουμένου *SB* 9289 = *PYale* 60.17 (6/5 B.C.); *POslo* 123.33 (A.D. 22); *PLond.* 139a (ii, 200-1).7-8 -τ- (A.D. 48); *BGU* 612.6 (A.D. 57); *PMerton* 14.15-16 (A.D. 103); *BGU* 2122.10 (A.D. 108); *POslo* 40.63 (A.D. 150); *POxy.* 2187.13 (A.D. 304); etc.
ἐλαττουμένη *POxy.* 286 = *MChr.* 232.25 (A.D. 82)
ἐλαττουμένης *CPR* 188.23 (1st/2nd cent.); *PErl.* 62.17 (2nd cent.); *PHamb.* 67 = *PLBat.* vi, 36.7,18 (A.D. 155-6); *SB* 9201.27 (A.D. 203); etc.
ἐ̣λ̣α̣ττουμένων *PMich.* 562.15 (A.D. 119); *SB* 6611.43 (A.D. 120/1)
ἐλαττοῦσθαι *POxy.* 2135.5,15 (A.D. 188); sim. *BGU* 1093.25 (A.D. 265)
ἐλασσῶσι *SB* 7448 = *PSI* 1160.5 (1st half 1st cent.: *BL* iii, 228)
ἐλασσω[θ]ῆναι *PSI* 691.11-12 (A.D. 176)
ἠλασσωμένων *StudPal.* iv, p. 72.497 (A.D. 72/73); *PLond.* 267 (ii, 129-41).133, sim. 270 (1st/2nd cent.)
ἠλασσώθ(η) *POxy.* 918 xi.3 part. rest., 13 (2nd cent.)

3. Nouns tend to be spelled with -σσ- unless specifically Attic or late.

a. γλῶσσα:[5]

γλῶσσα *POxy.* 108 i.4, etc. (A.D. 183/215); cf. *POxy.* 465.65, astrol. (late 2nd cent.)
γλώσσῃ *SB* 7872.3 (A.D. 306-37); *PLond.* 1729.20 (A.D. 584)
γλοσσοκόμωι *PRyl.* 127.25 (A.D. 29); sim. *POxy.* 521.12 (2nd cent.); *PTebt.* 414.21 (2nd cent.); *POxy.* 1449.15 (A.D. 213-17); *PFlor.* 167.15 (ca. A.D. 268); etc.
γλοσσοκομῖον *BGU* 824.9 (A.D. 55/56); etc.
γλωσσάρια *BGU* 162 = *WChr.* 91.2 (2nd/3rd cent.)
γλώ̣ττῃ *PGiss.* 99.9, Atticistic speech of advocate (2nd/3rd cent.)
γλῶττα *PMon.* 13.71 (A.D. 594)

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1 D.L. and papp. (*LSJ*, s.v.). Cf. Palmer, 97.
2 ἐλάττωμα is found once in the Ptol. papp. (Mayser i², 1, 198).
3 *BDF*, § 34.1.
4 So also in the Ptol. papp. (Mayser i², 1, 198).
5 γλῶσσα is more common than γλῶττα in mag. papp. (see *PGM* Indices s.v.).

b. θάλασσα and derivatives:[1]

θαλάσσης *POxy.* 1067.29 (3rd cent.); *PMerton* 93.29 (4th cent.); *WChr.* 6.1 (A.D. 425-50); *PRossGeorg.* iv, 5.13 (Arab.)

θαλάσσῃ *PLond.* 1914.39-40 (A.D. 335 ?)

θάλασσαν *BGU* 423 = *WChr.* 480.7 (2nd cent.); *PPetaus* 29.9-10 (ca. A.D. 185); *PApoll.* 28.6 (ca. A.D. 713)

θάλασσαι *SB* 7452.14, love charm (3rd cent. ?)

θαλασσεΐου *PCairIsidor.* 60.11 (A.D. 319); sim. *OStrassb.* 172.5 (prob. 4th cent.); *POxy.* 1288.6 (4th cent.)

θαλασσίων *PBeattyPanop.* 2.284 (A.D. 300); *PCairPreis.* 33.4 (ca. A.D. 339); *PLips.* 64 = *WChr.* 281.11,17 (A.D. 368/9)

θαλασίων *SB* 7621.188 (A.D. 310-24); *StudPal.* xx, 93.2, etc. (4th cent.)

θαλάττης *POslo* 126.4 (A.D. 161+); *SB* 9218.17 (A.D. 319/20); *PAntin.* 99a.1 part. rest. (early 4th cent.); *PRyl.* 617.1 (A.D. 327 ?); *PLips.* 34.1 part. rest. (ca. A.D. 375); *SB* 9399.10-11 (6th cent.)

θαλαττίου *POxy.* 87 = *WChr.* 446.7 (A.D. 342)

θαλαττίων *SB* 4423.4 part. rest. (A.D. 323-6: *BL* iii, 170); *PCairIsidor.* 59.4 (A.D. 316); *POxy.* 1905.9: *BL* iv, 62 (late 4th/early 5th cent.)

c. θρίσσα:[2]

θρισῶν, θρισσῶν, θρίσας, θρίσσας *PMich.* 123 R I (d).21; V II.9,13,16, etc. (A.D. 45-47)

θρίσα *POxy.* 2423 R ii.24 (2nd/3rd cent.)

θρεισῶν *BGU* 816.20 (3rd cent.)

θρισσίων *POxy.* 1923.9 (5th/early 6th cent.)

d. μέλισσα:

μελισσουργοῦ *PRyl.* 113.6 (A.D. 133)

μελισσουργῶν *BGU* 1567 B.16, etc. (3rd cent.); *POslo* 181 V descr. (3rd cent.)

μελισουργῶν *SB* 9245.5 (2nd/3rd cent.)

μελισουργούς *PCairMasp.* 296.7 (A.D. 535); sim. *PFlor.* 290.7 (6th cent.); *PCairMasp.* 287 i.16; 288 ii.25 (6th cent. ?)

μελιτουργ(οῦ) *PLond.* 1419.1040 (A.D. 716+)

μελιστουρ(γῷ) *StudPal.* viii, 1045.1 (6th cent.); 1147 = *BGU* 690.3 (Arab.); sim. *StudPal.* viii, 1055.1 (6th cent.); iii, 290.1 (5th cent.); 191.2 (7th cent.); x, 168.1 (8th cent.); xx, 252.23 (6th/7th cent.); *PLond.* 1869 descr. (6th cent.)

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[1] θάλασσα is found much more freq. than θάλαττα in mag. papp.; derivatives are excl. in -σσ- (*PGM* Indices, s.v.).

[2] Att. θρίττα Com. Arist. *Gp.* (*LSJ*, s.v.).

e. πίσσα:[1]

πίσσης *PLond.* 1171 (iii, 177-80).11 (8 B.C.); *BGU* 544.20 (A.D. 138-61); *BGU* 884. i.21 (2nd/3rd cent.); *PFlor.* 16.24 (A.D. 239); *POxy.* 1286.8 (A.D. 253); *POxy.* 1497.3-4 (ca. A.D. 279); *POxy.* 1753.3 (A.D. 390); *POxy.* 1754.4 (late 4th/5th cent.); *PCairMasp.* 110.41 (A.D. 565); etc.

πίσης *PGrenf.* i, 52.11 (3rd cent.); *PSI* 809.6 (4th/5th cent.)

πισσοκοπία *BGU* 14, iv.9-10, sim. 14 (A.D. 255); sim. *POxy.* 1911.187 (A.D. 557)

πισσο(υργῶν) *StudPal.* xx, 210.4 (7th cent.)

f. πιττάκιον:[2]

πιττάκιον *BGU* 1208.5,22 (27/26 B.C.); sim. *BGU* 1167.4,9,14 (12 B.C.); *PGiss.* 13.9 (ca. A.D. 117); *PRyl.* 122.17 (A.D. 127); etc.

πιττακίου *BGU* 1155 = *MChr.* 67.15 (10 B.C.); *POxy.* 1650.16,33; 1650a.7 (late 1st/early 2nd cent.); *POxy.* 1651.17 (3rd cent.); *POxy.* 2130.11-12 (A.D. 267); etc.

πιττακίῳ *PFlor.* 18.5-6,27 (A.D. 147/8); *PCairGoodsp.* 30 iv.5 (A.D. 191-2)

πιττακίων *POxy.* 297.7 (A.D. 54)

πιτταγιάρχου (for πιττακιάρχου) *BGU* 634.2 (2nd cent.); corr. *StudPal.* xx, 236.2 (5th/6th cent.); *PSI* 1061.8 (6th cent.); etc.

πιττακιδίῳ *PFouad* 78.7-8 (2nd/3rd cent.)

Note. The Byzantine formation ὁλοκότ(τ)ινος is always spelled with -τ(τ):

ὁλοκωτίνου *POxy.* 1929.9 (late 4th/5th cent.); sim. *PSI* 836.4 (6th cent.)

ὁλοκοτίου *BGU* 1082.5 (4th cent.)

ὁλοκόττινα *POxy.* 1223.23-24 (4th cent.); *PCairMasp.* 70.1 (6th cent.)

ὁλοκότινα *StudPal.* iii, 59.6 (6th cent.)

ὁλοκοττίνων *POxy.* 1026.5 (5th cent.); *PSI* 237.4 (5th/6th cent.)

ὁλοκοττίνους *CPR* 19 = *StudPal.* xx, 86.10 (A.D. 330)

ὁλοκοτίνους *PGen.* 68.8 (A.D. 382)

4. Most verbs fluctuate between the -σσ- and -ττ- spellings, with -σσ- predominating in the Roman period and -ττ- in the Byzantine.[3]

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[1] Att. πίττα D. etc. (*LSJ*, s.v.).

[2] Attested only in Dinol. before Plb. (*LSJ*, s.v.). The -ττ- spelling is used excl. in the Ptol. papp. (Mayser i², 1, 197) and has survived in MGr. πιττάκι(ον) (Schwyzer i, 137).

[3] Some verbs, esp. πράττειν, show forms in -ττ- along with forms in -σσ- in the Ptol. papp. (Mayser i², 1, 198).

a. πράσσω:[1]

πράσσειν *POxy.* 822 descr. (ca. A.D. 1); *PLips.* 38 = *MChr.* 97 i.6 (A.D. 390); etc.

πράσσοντι *PHamb.* 2.23 part. rest. (A.D. 59); *SB* 5146.4 (A.D. 193); *SB* 5148.2 (A.D. 251); *CPR* 40.27 (A.D. 300: *BL* iii, 47); 41.24 (A.D. 305); *SB* 9603 a). 19 (A.D. 372); etc.

πρασσομένων *PHeid.* 234.5 (1st/2nd cent.); *PMich.* 489.3-4 (2nd cent.); etc.

πράσσις (for πράσσεις) *PMich.* 487.8 (2nd cent.); corr. *PVars.* 22.3 (3rd cent.)

πράσσεσθαι *BGU* 330.9 (A.D. 153); sim. *POxy.* 1467.21 (A.D. 263); etc.

cf. πράσσων *PMur.* 115.18 (A.D. 124); *PLBat.* xvii, 16 b.2 (2nd/3rd cent.)

ἐκπράσσων *BGU* 159 = *WChr.* 408.9 (A.D. 216)

πράττων *POxy.* 292.13 (ca. A.D. 25); *PLond.* 408 = *PAbinn.* 18.3 (ca. A.D. 346); *PCairMasp.* 151-2.30 (A.D. 570); *SB* 4668.9,11,13 (A.D. 678); etc.

ἀντιπράττων *PSI* 686.5 (6th cent.)

πράττειν *POxy.* 2353.18 (A.D. 32); *PSI Omaggio* 11.32 (3rd cent.); *SB* 7567.5-6 (3rd cent.); *POxy.* 2561.2 (A.D. 293-305); *PSI* 207.2 (3rd/4th cent.); *PLond.* 232 = *PAbinn.* 33.3 (ca. A.D. 346); *PLBat.* xiii, 18.3 (4th cent.); *PFouad* 80.2 (4th cent.); *PMon.* 11.50 (A.D. 586); etc.

πράττης *PRyl.* 235.14 (2nd cent.)

πράττετε *POxy.* 115 = *WChr.* 479.12 (2nd cent.); sim. *PHarris* 109.6 (3rd/4th cent.)

διαπράττεται, ἀντιπράττει *PThead.* 15.14 (A.D. 280/1)

πράττει *BGU* 388 = *MChr.* 91 ii.13, sim. 11 (2nd half 2nd cent.)

παραπράττεσθαι *PCairIsidor.* 69.5 (A.D. 310); sim. *POxy.* 1101.11 (A.D. 367-70)

διαπραττομένν[ο]υς *POxy.* 902 = *WChr.* 72.17-18 (ca. A.D. 465)

πράττω *PHermRees* 48.6 (5th cent.)

πράττεις *PRossGeorg.* iii, 16.18 (6th cent.)

b. τάσσω:[2]

συντάσσηι *POxy.* 278 = *MChr.* 165.19 (A.D. 17); sim. *PMich.* 276.10, etc. (A.D. 47)

συντάσσης· *PMich.* 266.6 (A.D. 38)

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[1] The -σσ- and -ττ- spellings are found in approx. equal frequency in mag. papp., e.g., πράσσω *PGM* 4.950,952, w. πράσσεις 2570 (4th cent.); πράττε *PGM* 12.383 (A.D. 300-50); πράττειν *PGM* 4.858,2469 (4th cent.); etc.

[2] Only -σσ- spellings are attested in mag. papp., e.g., ἐπιτάσσω *PGM* 7.332 (3rd cent.); ἐπιτάσσειν, ἐπίτασσε *PGM* 12.316 (A.D. 300-350); προστάσσει *PGM* 13.259 (A.D. 346); etc.

ἐπιτασσόμενα *PLBat.* xvi, 4.10 (A.D. 53); *POxy.* 2971.10 (A.D. 66); *PFlor.* 44.20 (A.D. 158); etc.
διατάσσειν *POxy.* 493 = *MChr.* 307.6 (early 2nd cent.); *BGU* 1210 (14).49 (mid 2nd cent.); *PMon.* 4.30 (A.D. 581); 9.75 (A.D. 585); 13.47 (A.D. 594); etc.
ἀποτάσσομαι *PMich.* 476.19 (early 2nd cent.)
προσδιατάσσων *POxy.* 494 = *MChr.* 305.26 (A.D. 156)
διατασσομένων *SB* 9356.5 (A.D. 190/1)
διετάσσετο *POxy.* 899 = *WChr.* 361.22 (A.D. 200)
τασσόμενος *POxy.* 2898 ii.12-13 (A.D. 270/1)
ἐκτάσσω καὶ διατάσσω *PCairMasp.* 97 V d.72, exercise in style (6th cent.); διατάσσω *PCairMasp.* 151-2.62,100 (A.D. 570)

ἐπιταττόμενα *POxy.* 2859.10 (A.D. 301); *PCairMasp.* 159.28 (6th cent.)
προσταττούσης *POxy.* 2562.13 (A.D. 330+)
ἀντιτάττεσθαι *PLBat.* xiii, 18.12-13 (4th cent.)
προτάττεσθαι *PAmh.* 145 = *WChr.* 53.24 (ca. A.D. 400)
ἐκταττόμενα *BGU* 836 = *WChr.* 471.3 (A.D. 527-65)
ἀποταττόμενος *POxy.* 136 = *WChr.* 383.37 (A.D. 583)
ἀποτάττεσθαι *PMon.* 10.11 (A.D. 586)
διατάττω *PGron.* 10.8 (prob. 6th cent.: *BL* v, 39)

c. φυλάσσω:[1]

φυλασσόντων *SB* 7174 = *PMich.* 233.7, etc. (A.D. 24: *BL* v, 69)
φυλάσσειν *PMich.* 587.22 part. rest. (A.D. 24/25); sim. *PMich.* 123 R II.17 (A.D. 45-47)
φυλασσόμενον *POxy.* 34 V = *MChr.* 188, i.17 (A.D. 127); sim. *PRyl.* 86.8 (A.D. 195)
φυλάσσονται *BGU* 1210 (77).189 (mid 2nd cent.)
φυλ̣άσσου *PMerton* 81.37 (2nd cent.)
φυλάσσ[ω *PWürzb.* 9.39, with φυλάττειν 51 (A.D. 161-9)
φυλάσσντες *POxy.* 1473.11 (A.D. 201)

φυλάττειν *PLond.* 1178 = *WChr.* 156.35 (A.D. 194); sim. *PBouriant* 20 = *PAbinn.* 63.16 (A.D. 350); *PMon.* 13.70 (A.D. 594); etc.
παραφυλάττεσθαι *POxy.* 2341.30-31 (A.D. 208); *PLBat.* xiii, 9.5 (early 4th cent.)
φυλάττω *BGU* 1074.6 (A.D. 275)
παραφυλάττειν *SB* 7622 = *PCairIsidor.* 1.19 (A.D. 297); *PBeatty-Panop.* 2.218 (A.D. 300)
φυλαττομένης *PBeattyPanop.* 2.224 (A.D. 300)
φυλάττε̣σ̣θ̣α̣ι̣ *POxy.* 2110.22 (A.D. 370); *PCairMasp.* 151-2.61 (A.D. 570)

[1] The foll. spellings are found in mag. papp.: φύλαττε *PGM* 4.84, w. φύλασσε 2110, 3084, φυλασσόμενος 3085, 3094, -μένη 256 (4th cent.); διαφύλασσε *PGM* 7.589 (3rd cent.); φυλάττο̣ντες *PGM* 15 b.1 (n.d.).

φυλάττουσι *POxy.* 141.5 (A.D. 503)
διαφυλάττειν *PMerton* 125.6 (6th cent.); *POxy.* 138.36 (A.D. 610-11)

d. ἀλλάσσω:[1]

ἀ]παλλασσομέν[η]ς *PRyl.* 154.26 (A.D. 66)
ἐξαλλάσσεσθαι *PMich.* 202.10 (A.D. 105)
ὑπαλλάσσει *BGU* 1072 R i = *MChr.* 195.8 (A.D. 125-9); sim. *PLips.* 10 = *MChr.* 189, i.12 (A.D. 240)
σ[υνα]λλασσόντων *POxy.* 34 V = *MChr.* 188, i.9-10 (A.D. 127)
ἀλλάσσειν *POxy.* 729.43 (A.D. 137)
ἀπαλλάσσομαι *PFay.* 19.4 (2nd cent.)
συναλλάσσει *POxy.* 1491.8-9 (early 4th cent.)
cf. συναλλασσομέ[νων *SB* 676.22, inscr. (1st cent.); ἀπαλλάσσουσιν *POxy.* 465.33, astrol. (late 2nd cent.); etc.
ἀπαλλάττει *POxy.* 1204.21 (A.D. 299)
ἀντικαταλλάττεσθαι *PCairMasp.* 169.8 (6th cent.); 299.23-24 (Arab.)
ἐναλλάττειν *SB* 5112.48 (A.D. 618?); 5113.15 (7th cent.); 5114.31 (A.D. 613-40)
καταλλάττειν *PLond.* 1735.11 (late 6th cent.); sim. *PLond.* 77 = *MChr.* 319.36 (8th cent.)

e. Other verbs:[2]

καταπλήσσεσθαι *SB* 3924.9 (A.D. 19)
ἐπιπλησσομένου *SB* 7464.14: *BL* iii, 186 (A.D. 248)
ἐπιπλήσσιν *PFlor.* 241.2-3 (A.D. 254)
καταπλήττουσιν *PCairIsidor.* 73.3 (A.D. 314)
ταράσσει *POxy.* 298.27-28 (1st cent.)
συνταράσσειν *PGen.* 1.12 (A.D. 213: *BL* i, 156)
ταράσσουσι *PGiss.* 40 ii = *WChr.* 22.20 (A.D. 215)
συνταρασσομένης *SB* 8444.41 (A.D. 98-138)
ταράτ[τ]ης *POxy.* 2407.43 (late 3rd cent.)
χαράσσων *SB* 9379 = *PMilVogl.* 69 A. 34,70; sim. B. 38,83,84 (2nd cent.)
πα`ρα´χαράττω *PCairMasp.* 353.20 (A.D. 569)
ἡττ[ή]θησαν *WChr.* 16 = *PBrem.* 1.7 (2nd cent.)
ἐπικηρυσσομένου *PRyl.* 75.31,34 part. rest. (late 2nd cent.)
προκυρισσομένη (for -κηρυσσ-) *PLond.* 1919.29 (A.D. 330-40)
κηρύττει *PLond.* 1927.45-46 (mid 4th cent.)
ὀρυσσόμενον *POxy.* 2847 i.25 (1st half 3rd cent.)
ὀρύσσουσι *PMerton* 27.12 (3rd cent.)

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[1] Only -σσ- spellings are attested in mag. papp.: διαλλάσσει *PGM* 12.15 (A.D. 300-50); καταλλάσσουσα *PGM* 4.1499, w. ἀπαλλάσσεται 3006 (4th cent.); καταλλάσσομαι *PGM* 26.6, w. ἀπ- 19 (3rd/4th cent.).

[2] For ἁρμόττω in Byz. papp., see Morphology VI B 1 a.

πλασσομ(ένης) *PSI* 472.8 (A.D. 295)
κατάπλ̣α̣σε *PCairMasp.* 141 ii R.28 (late 6th cent. ?)
ἀποφρασσόντων *PRyl.* 653.17 (A.D. 321)
ἀποφράτ'τιν *SB* 6000 V.9 (6th cent.)
ἀποβδελύτ'τουσι *PLond.* 1708.102 (A.D. 567 ?)

E. INVERSION[1]

There are isolated examples of inversion or transposition of consonants which are usually the result of scribal error.[2] The only word occurring repeatedly in an inverted spelling is φαιλόνης for φαινόλης, *paenula.*[3]

φελονῶν *PFay.* 347 descr. (2nd cent.); sim. *OTait* 1947.1 (2nd/3rd cent.)
φαιλόνην *PYale* 82.8 (late 2nd cent.); sim. *PLBat.* vi, 49b, i.1 (prob. A.D. 205); etc.
φαιλόνιον *POxy.* 933.30 (late 2nd cent.); sim. *PGiss.* 12.4 (ca. A.D. 117); *PLBat.* xiii, 18.21 (4th cent.); *PGen.* 80.14 (4th cent.)
φαινόλου *POxy.* 736.4,10,77 (ca. A.D. 1); sim. *PMich.* 201.10-11 (A.D. 99); *PGiss.* 79 iv.2-3 (ca. A.D. 117); *PGiss.* 10.21 (A.D. 118); *POxy.* 1583.6 (2nd cent.); *PHamb.* 10.19 (2nd cent.); *PMich.* 496.10 (2nd cent.); etc.
φαινολίων *POxy.* 531 = *WChr.* 482.14 (2nd cent.); 1584.7,18-19 part. rest. (2nd cent.); sim. *POxy.* 936.18,19 (3rd cent.); etc.

F. SIMPLIFICATION AND GEMINATION[4]

Single consonants are very frequently doubled in writing and contiguous identical consonants very frequently represented by a single letter through the Roman and Byzantine periods, as elsewhere in the Koine.[5] This indicates the

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[1] Schwyzer i, 267-9, cf. 484; Schweizer, 130-1; Rüsch, 250; *BDF*, § 32.2.

[2] See Introduction to Phonology above, p. 59.

[3] Cf. φελόνην NT (2 Tim 4.13), B ⲫⲧⲗⲟⲗⲏ, S ⲫⲉⲗⲟⲗⲏⲥ in Copt. NT (Böhlig, 195-6), φελόνης Byz. Chron. (Psaltes, 68-69, 121, 180), φελόνι MGr. (Schwyzer i, 484; *BDF*, § 5.1, 32.2). *Paenula* may be a Gr. loanword in Lat. (Schwyzer i, 268; *BDF*, *ibidd.*).

[4] Schwyzer i, 230-2, 238, 315-23; Lejeune, § 52-53, 126; Buck *GD*, § 89, 101; *MS*, 88-91, 93-99; Schweizer, 115, 122-24; Nachmanson, 88-94; Hauser, 65-68; Rüsch, 226-43; Mayser i², 1, 186-94; Crönert, 74-80, 92-93; *BDF*, § 11; Psaltes, 125-32.

[5] Simplification is found in Att. and Delph. inscrr. from the 4th cent. B.C. on (*MS*, 95-96; Rüsch, 226-33), as well as later in Asia Minor inscrr. (Schweizer, 122-4; Nachmanson, 88-94) and very freq. in the Ptol. papp. (Mayser i², 1, 186-91). Gemination occurs less freq. and sts. under certain conditions (Mayser i², 1, 191-4). At Dura, -ρρ- > -ρ- occurs in ἐρωμένος (for ἐρρωμένος) *PDura* 46.2 (early 3rd cent.) and -μμ- > -μ- in ἀγραμάτου *PDura* 26.30, w. προγεγρομένα (for προγεγραμμένα) 32 (A.D. 227), and 29.20 (A.D. 251). Gr. double consonants are usu. transcribed in Copt. by double consonants, but this practice may be purely

identification in speech of single and double consonants corresponding to the loss of quantitative distinction in vowels, which occurred under the influence of the stress accent.[1]

1. Liquids.

a. λλ > λ:

ἄλα (for ἄλλα) *PMich.* 312.21 (A.D. 34); sim. 123 R II 20 (twice), corr. III.4,27, etc. (A.D. 45-47); *POxy.* 496 = *MChr.* 287.7 (A.D. 127); *POxy.* 2767.28 (A.D. 323); *StudPal.* viii, 1192.2 (5th cent.); etc.

ἀλ' (for ἀλλ') ἵνα *POxy.* 34 V = *MChr.* 188, i.6 (A.D. 127); *POslo* 55.12 (2nd/3rd cent.); etc.

ἀλ' οὐκ *POxy.* 1293.43 (A.D. 117-38)

ἀλ' ὅρα *POxy.* 527.6-7 (2nd/early 3rd cent.); *PPrinc.* 73.4,11 (3rd cent.); *PLond.* 988 (iii, 243-4).13: *BASP* vi, 44 (3rd cent.: *BL* i, 293); *POxy.* 112 = *WChr.* 488.6 (late 3rd/early 4th cent.); etc.

ἀλ' ὅμως *POxy.* 1933.15 (6th cent.)

μέλω (for μέλλω) *PFay.* 137 = *WChr.* 121.3 (1st cent.)

μετηλα|χότος (for μετηλλαχότος) *PMich.* 171.6-7 (A.D. 58)

συναλάγη (for συναλλάγη) *PTebt.* 413.12 (2nd/3rd cent.)

κάλιστα (for κάλλιστα) *POxy.* 1758.8 (2nd cent.)

παραγ[γ]έλεται (for παραγγέλλεται) *BGU* 18 = *WChr.* 398.13 (A.D. 169)

μᾶλον (for μᾶλλον) *POxy.* 2730.17 (4th cent.)

πολοῖς (for πολλοῖς) *PMich.* 520.14 (4th cent.); sim. *PJand.* 101.9 (5th/6th cent.); *PLond.* 1380 = *WChr.* 285.14 (A.D. 710/11)

ἀληλεγγύης (for ἀλληλεγγύης) *PLBat.* xiii, 15.8, etc. (A.D. 435)

cf. also in Latin names and loanwords:

Σερηνίλα (for Σερηνίλλα *Serenilla*) *OOslo* 26.6 (4th/5th cent.)

καγκέλου (for καγκέλλου *cancellus*) *PJand.* 38.13 (5th/6th cent.)

b. λ > λλ:

ἀνειλλημένων (for ἀνειλημμένων) *POxy.* 721 = *WChr.* 369.5,6,7 (A.D. 13/14)

ἐ[π]ηκολλούθηκα, ἀκολλούθως (for ἐπηκολούθηκα, ἀκολούθως) *PGen.* 22.14 (A.D. 37-38); sim. *PBaden* 78.2 (2nd/3rd cent.)

ἄλλα, ἀλλός (for ἅλα, ἁλός) *SB* 8030 = *PMich.* 245.16,28, corr. elsewh. (A.D. 47)

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orthographic; there is a tendency in Copt. docc. to confuse single and double consonants both in native Eg. words and in Gr. loanwords (Kahle VIII, §73A, 74, etc.; Böhlig, 114-15; etc.). A distinction between single and double consonants is preserved in some MGr. dialects, but most double consonants occur in loanwords or arose secondarily through phonetic change (Thumb, *Handbook*, §36).

[1] See below, pp. 325-6.

ἐλλαττουμένου (for ἐλαττουμένου) *PStrassb.* 145 = *SB* 8260.16 (A.D. 61/62)
θέλλεις (for θέλεις) *POslo* 53.12 (2nd cent.)
βούλλῃ (for βούλῃ) *POxy.* 1678.18 (3rd cent.)
σιτολλόγων (for σιτολόγων) *OMich.* 926.1 (A.D. 303)
μάλλιστα (for μάλιστα) *POxy.* 2110.30 (A.D. 370)
ἀλλωνίᾳ (for ἀλωνίᾳ) *POxy.* 1977.6 (6th cent.)
γαλλῃνοτάτου (for γαληνοτάτου) *PMon.* 2.12 (A.D. 578)
ἐλλέγχω (for ἐλέγχω) *POxy.* 1944.7 (6th/7th cent.)
μεγάλλην (for μεγάλην) *PCairMasp.* 20 V.3 (6th cent.); cf. *SB* 4086.3, inscr. (A.D. 4)

Note. Latin *l* is sometimes transcribed by λλ, e.g., Ἀπριλλίων *Aprilis POxy.* 899 V (= introd.).7 (ca. A.D. 200); *PThead.* 41.7, with Ἀπριλίω[ν] 3 (A.D. 309); γαλλιαρίων *galearius PLips.* 40 iii.10 (late 4th/early 5th cent.).[1]

c. ρρ > ρ:

βορᾶ (for βορρᾶ) *PLond.* 262 = *MChr.* 181.5 (A.D. 11); *PMich.* 249.3; sim. 250.4 (A.D. 18); 263.29 (A.D. 35-36); 280.4; 282.5; 295.8; 298.8 (all 1st cent.); *POxy.* 489.15, corr. 6 (A.D. 117); *PPetaus* 22.32 (A.D. 185); *PTebt.* 310.8 (A.D. 186); *BGU* 71.10 (A.D. 189); *POxy.* 1697.11 (A.D. 242); etc.
ἀναπόριφον (for ἀναπόρριφον) *PMich.* 121 R I.iii, iv, vi; II, ix.1 (A.D. 42); sim. *POxy.* 94 = *MChr.* 344.10-11 (A.D. 83); *POxy.* 95 = *MChr.* 267.19 (A.D. 129); *BGU* 153 = *MChr.* 261.18,35-36 (A.D. 152); *POxy.* 1707.14-15 (A.D. 204); etc.
ἀραβῶνα (for ἀρραβῶνα) *PMich.* 121 R II x.1 (A.D. 42); *POxy.* 299.2-3 (late 1st cent.); *BGU* 80 = *MChr.* 257.5, etc. (A.D. 169-77: *BL* iii, 13); *BGU* 601.11 (2nd cent.); *CPR* 19 = *StudPal.* xx, 86.9, etc. (A.D. 330); etc.
ἔρωσο (for ἔρρωσο) *SB* 9122.14 abbrev. (1st cent.); *PGissBibl.* 19.12 (A.D. 55)
ἐρῶσθαι (for ἐρρῶσθαι) *PMich.* 464.22, with ἔρρωσο 24 (A.D. 99); *PJand.* 9.43; *BGU* 2058 ii.10; *POxy.* 1583.12 (all 2nd cent.); *PPetaus* 18.16 (A.D. 185); *PMichael.* 16.2 (2nd/3rd cent.); *SB* 10279.8 (4th cent.); etc.
cf. ἐρωμένος *PDura* 46.2 (early 3rd cent.)
ἀντίρησιν (for ἀντίρρησιν) *POxy.* 68 = *MChr.* 228.11 (A.D. 131)
παρησία (for παρρησία) *PMich.* 502.9,12 (2nd cent.); etc.
ἐπίροιαν (for ἐπίρροιαν) *POxy.* 2341.5 (A.D. 208)
ἐπιρέον (for ἐπιρρέων) *POxy.* 130.6 (6th cent.)
ἐρίψαμεν (for ἐρρίψαμεν) *PHermRees* 10.9 (4th cent.)
ὁρίοις, ἀπορ[ι]πτοῦντες, ἀποριφῆναι (for ὁρρίοις, ἀπορρ-) *SB* 9285.7,10,15 (2nd half 6th cent.)

[1] See esp. Meinersmann, 107.

d. ρ > ρρ:

πρρός *PMich.* 121 V, VI.6 (A.D. 42)
ἐπερρωτηθέντων (for ἐπερωτηθέντων) *PPrinc.* 150 i.26 (2nd cent.); sim. *PPrinc.* 145.10 (6th cent.)
γερρῶν (for γερῶν) *PMich.* 223.1469,2320 (A.D. 171-2); 224 R.804, corr. 38 (A.D. 172-3)
ἄρρον (for ἄρον) *POxy.* 119.10 (2nd/3rd cent.)
παρρουσίαν (for παρουσίαν) *PCairMasp.* 292.7 (6th cent.)
ἀρρώσιμον (for ἀρόσιμον) *POxy.* 1989.14 (A.D. 590)
μαρτυρρῶ (for μαρτυρῶ) *PMon.* 12.57 (A.D. 590/1 ?)

2. Nasals.

a. μμ > μ:

γράματα (for γράμματα) *PMich.* 243.28 (A.D. 14-37); 269-71.12, so duplic. *PSI* 907.8 (A.D. 42); *SB* 7032 = *PMich.* 187.40 (A.D. 75); *POxy.* 975 = *SB* 10274.18 (A.D. 99); *POxy.* 728.34 (A.D. 142); *BGU* 31.9 (A.D. 158/9); *POxy.* 1200.61 (A.D. 270: *BL* ii, 99); *POxy.* 43 R, iii.34 (A.D. 295); *PCairMasp.* 1.40 (A.D. 514); etc.
προγεγραμένων (for προγεγραμμένων) *SB* 7031 = *PMich.* 186.32 (A.D. 72); sim. *BGU* 113 = *WChr.* 458.1 (A.D. 140); *PMed.* 54.13 (A.D. 138-61); etc.
πρόγραμα (for πρόγραμμα) *POxy.* 1155.11 (A.D. 104)
ἀγραμάτου (for ἀγραμμάτου) *PCairIsidor.* 86.12 (A.D. 309); *PFlor.* 36 = *MChr.* 64.30 part. rest. (A.D. 312); sim. *POxy.* 133.27 (A.D. 550); etc.
συμο|ρίας (for συμμορίας) *PTebt.* 316 = *WChr.* 148.47-48,75,81, etc.; corr. 37,38 (A.D. 99)
λήματος (for λήμματος) *PHeid.* 233 = *PSarap.* 58, ii.1 (ca. A.D. 125 ?); *PSarap.* 60.5 (A.D. 124); sim. *PStrassb.* 21 = *PSarap.* 61.1 (ca. A.D. 125)
ληματίζωμεν (for λημματίζωμεν) *PFlor.* 31.7, sim. 19 (A.D. 312)
ἤλιμε (for ἤλειμμαι) *POxy.* 528.11 (2nd cent.)
ἐπιτετραμένου (for ἐπιτετραμμένου) *PPetaus* 19.5 (A.D. 185)
σύμαχον (for σύμμαχον) *POxy.* 1871.4 (late 5th cent.); sim. *StudPal.* iii, 7.1 (6th cent.)
cf. Κομόδου (for Κομμόδου *Commodus*) *OStrassb.* 385.2 (A.D. 178); *PPetaus* 31.9 (A.D. 183/4); sim. *POxy.* 79.16 (A.D. 181-92); etc.

b. μ > μμ:

σταμνόν (for σταμμνον) *BGU* 1055 = *MChr.* 104.16, sim. 21 (13 B.C.)
ὑπόμμνημα (for ὑπόμνημα) *POxy.* 252 = *WChr.* 215.12 (A.D. 19/20); *PMich.* 226.46 (A.D. 37); 229.44 abbrev. (A.D. 48)

ἅμμα (for ἅμα) *PMich.* 493.13 (2nd cent.); *PPrinc.* 84.11, corr. 4,6 (5th cent. ?); *PBouriant* 19.41 (5th/6th cent.)
προκρίμματος (for προκρίματος) *PFlor.* 68.13,16 clearly (A.D. 172+)
μερίμμνον (for ἐμερίμνων) *SB* 9194.9 (late 3rd cent.)
λίμμνη (for λίμνη) *BGU* 94.9 (A.D. 289)
π]ροκειμμένοις (for προκειμένοις) *POxy.* 1704.26 (A.D. 298)
ἀμμπέλου (for ἀμπέλου) *POxy.* 2113.16 (A.D. 316)
Ἀβραάμμ (for Ἀβραάμ) *PLBat.* xi, 16.1-2; V.1 (5th/6th cent.)
Ἀβ[ρ]αμμίου *POxy.* 2007.2-3 (early 6th cent.)
διμμωσίου (for δημοσίου) *POxy.* 1998.9 (6th cent.)
πέμμπι (for πέμπει) *POxy.* 1874.21 (6th cent.)

c. νν > ν:

ἐνέα (for ἐννέα) *PMich.* 322a.26 (A.D. 46); sim. *StudPal.* viii, 1335.1 (7th/8th cent.)

d. ν > νν:

1) In medial position:

ἀνναδενδρατικόν, ἀνναβολῆς (for ἀνα-) *PMich.* 274-5.4,6 (A.D. 46-47)
ἐννάτου (for ἐνάτου) *PLips.* 68.5 (A.D. 124); *POxy.* 2124.6 (A.D. 316); *PStrassb.* 338.2 (A.D. 550); *SB* 9591.8 (7th cent. ?)
ἐννάτης *BGU* 974 = *WChr.* 423.8 (A.D. 380); *PRossGeorg.* iii, 37.2 (A.D. 545); *PCairMasp.* 235.8 (6th cent. ?)
ὀννηλ(άτης) (for ὀνηλάτης) *PSarap.* 76.3, corr. 7 (ca. A.D. 125 ?); in full *WO* 1107.4 (A.D. 192)
ὄννων (for ὄνων) *PMich.* 224.1902,2520,3474,3749,4563, corr. elsewh. (A.D. 172-3); sim. *WO* 1105.3; 1107.4 (A.D. 192)
νυννί (for νυνί) *PLeit.* 1.4 (ca. A.D. 160)
συννηννωμένου (for συνηνωμένου) *SB* 7622 = *PCairIsidor.*1.9 (A.D. 297)
πάννυ (for πάνυ) *PJand.* 101.7 (5th/6th cent.)
γεννήματος (for γενήματος) *POxy.* 1947.2 (early 6th cent.)

2) In final position:

τὴνν (for τὴν) πορφύραν *PMich.* 504.13 (2nd cent.)
ἐνν (for ἐν) οὐρανῷ *SB* 2266.8 (4th cent.)

3. Sibilants.

a. σσ > σ:

τέσαρες (for τέσσαρες) *OFay.* 2.4 (23 B.C.); sim. *POxy.* 1158.7-8, corr. 10,14 (3rd cent.); etc.
τεσαράκοντα *PFay.* 97 = *MChr.* 315.6-7 part. rest. (A.D. 78); sim. *PMich.* 568.20 (A.D. 90 ?); *POxy.* 43 R iii.28,33; v.29 (A.D. 295)
ἧσον (for ἧσσον) *PMich.* 340.107 (A.D. 45/46); *PMich.* 583.25 (A.D. 78)

πράσοντα (for πράσσοντα) *POxy.* 1155.8 (A.D. 104)
ἔλασον (for ἔλασσον) *PSI* 883.13-14 (A.D. 137)
ὀκτασά (for ὀκτασσά) *POxy.* 1638.30 (A.D. 282)

b. σ > σσ.

1) In medial position.

a) Before a stop:[1]

πεπρᾶσσθαι (for πεπρᾶσθαι) *POxy.* 819 descr. (ca. A.D. 1)
γενέσσθαι, ὀφείλεσσθαι, ἀναφέρεσσθαι, ἐνέχεσσθαι (for -εσθαι) *MChr.* 88 i.3,21; ii.24 (A.D. 141+)
κατεχωρίσσθη *SB* 7379.1 (A.D. 177)
ἐρρῶσσθαι (for ἐρρῶσθαι) *PPhil.* 35.31 (late 2nd cent.); *SB* 7248 = *PMich.* 216.30 (A.D. 296); *POxy.* 1160.28 (late 3rd/early 4th cent.)
μισθώσασσθαι (for -ασθαι) *PHamb.* 20.6 (A.D. 258)
μεταπέμψασσθαι (for -ασθαι) *POxy.* 118.7 (late 3rd cent.)
μεμισσθώμεθα, μίσσθω(σιν) (for -μισθ-) *SB* 10535.34,37 (ca. A.D. 30); sim. *SB* 5126 = *StudPal.* xx, 70.5,20,31 (A.D. 261); *PYale* 72.8 (5th cent.)
ἐπισ|στολήν, ἐπισσκοπούμεθα (for ἐπιστ-, ἐπισκ-) *PMerton* 63.21-22; 24, sim. 27 (A.D. 57)
λαχανοσσπέρμου (for λαχανοσπέρμου) *PMich.* 464.15 (A.D. 99)
ἐσσφραγιζμένα (for ἐσφραγισμένα) *POxy.* 528.16 (2nd cent.); sim. *PTebt.* 413.6 (2nd/3rd cent.)
συναπέσσχον *SB* 9618.26 (A.D. 192)
ἔσσχον (for ἔσχον) *PRossGeorg.* v, 19.2, corr. 20 (A.D. 236); *POxy.* 1773.21, sim. 23 (3rd cent.); *SB* 4643.2 (5th/6th cent.)
ἀγρώσσθεως (for ἀγρώστεως) *SB* 5126 = *StudPal.* xx, 70.30 (A.D. 261)
προσσκύνημα (for προσκύνημα) *POxy.* 2598 b.2 (3rd/4th cent.); cf. *SB* 4123.5, inscr. (n.d.)
ἕκασστ[ον] ἀπόσσχολος, ἀγουσσταλίου, πάσσχα, ἐπισστολήν, δέξεσστε (for -σθε) *PRossGeorg.* iii, 10.18,22 & 31,22,23,24-25 part. rest. & 31,27 (4th/5th cent.)
ἑκάσστου *PSI* 1426.2 (5th/6th cent.)

b) Intervocalically:

ποή|σσω (for πο(ι)ήσω) *PMich.* 281.6-7 (1st cent.)
ἔρρωσσο (for ἔρρωσο) *SB* 9017 (14).24; (21).15; (31).26; (32).10 (1st/2nd cent.); *POxy.* 1155.14 (A.D. 104); *PMich.* 498.26 (2nd cent.); *PFay.* 124.27 part. rest. (2nd cent.); *PMich.* 575.9 (A.D. 184?); *PMich.* 511.22 (1st half 3rd cent.); etc.

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[1] Doubling of σ in this position is often explained as a graphic device to indicate the syllable boundary between σ and the foll. consonant (Lejeune, § 296; Mayser i², 1, 192). The gemination of σ is disproportionately freq. in the Koine (*MS*, 89-90; Mayser *ibid.*).

κν̣ώσσεσθε (for γνώσεσθε) *PAmh.* 135 = *PSarap.* 96.17 (A.D. 129?)
τοσσοῦτον (for τοσοῦτον) *PTebt.* 304.9 (A.D. 167/8)
κα[τε]|χωρίσσαμε (for κατεχωρίσαμεν) *PMich.* 544.2-3 (A.D. 176)
πρόσσεχε (for πρόσεχε) *PJand.* 95.6 (prob. 2nd/3rd cent.)
πάσση[ς (for πάσης) *BGU* 637 = *MChr.* 336.5 (A.D. 212/13)
προσσίεσθαι (for προσίεσθαι) *POxy.* 1411.6, corr. 11 (A.D. 260)
σημασσία (for σημασία) *POxy.* 1678.28 (3rd cent.)
πόσσου (for πόσου) *PLBat.* xi, 27.15-16 (3rd/4th cent.)

2) In final position:

εἰςς (for εἰς) πρᾶσιν *SB* 7599.28 (A.D. 95)
εἰςς τάς *PRossGeorg.* v, 19.2 (A.D. 236)
cf. εἰςς τήν *SB* 3966.2, mummy label (n.d.)
πρὸςς (for πρὸς) μόνους *POxy.* 729.9, corr. 8 (A.D. 137); sim. *PCornell* 18.10,11-12,14,15 (A.D. 291); *POxy.* 2771.5 (A.D. 323)
τινοςς (for τινος) ἔχοντες *PMich.* 423-4.12-13, with αὐτοὶ σσυνεκομίσαντο 15 (A.D. 197)

c. ζ > ζζ:

γαζζήτιον (for γαζίτιον) *PJand.* 103.9,10 (6th cent.)

4. Stops.

a. κκ > κ:

λάκον (for λάκκον) *PWürzb.* 22 = *PSarap.* 97.9 (early 2nd cent.)
ἔκλητο[ν (for ἔκκλητον) *POxy.* 1171.3: *BL* i, 332 (ca. A.D. 178)
ἐκλησίας (for ἐκκλησίας)[1] *POxy.* 2673.9,15,16-17 (A.D. 304); *BGU* 311.16 (Byz.); *SB* 4825.3 (Byz.); sim. *POxy.* 1951.1 (5th cent.); *PCairMasp.* 283 ii.4,6, corr. elsewh. (before A.D. 548); *PCairMasp.* 298.55 (6th cent.); *POxy.* 993 descr. (6th cent.); *PBaden* 95.69,71, 175,349 (7th cent. or earlier: *BL* iii, 256); *StudPal.* viii, 746.4 abbrev. (7th cent.)
σάκοι (for σάκκοι) *OMich.* 882.2 (3rd cent.); sim. *OFay.* 41.3; 42.3; 43.3 (early 4th cent.)[2]

b. κ > κκ.

1) In medial position:

οἰκκίας (for οἰκία) *PMich.* 290.9, corr. 5 (ca. A.D. 37)
ἐκκτός (for ἐκτός) *PPrinc.* 188.20 (1st/2nd cent.)

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[1] Cf. French. *église* with simplification of Gr. -κκ-.

[2] σάκος Att., σάκκος Dor. (Phryn.), Hellenic (Moer.), Com. (Poll.) (*LSJ*, s.v.); better written Ptol. papp. have -κκ- (Mayser i², 1, 190).

νυκκτεί (for νυκτί) *PStrassb.* 216.6 (A.D. 126/7)
τέκκνα (for τέκνα) *BGU* 602.13, sim. 15, corr. 11, cf. 12 (2nd cent.)
ὀκκτακοσίας (for ὀκτακοσίας) *BGU* 153.37 (A.D. 152)
ὠκκτώ (for ὀκτώ) *PMerton* 95.4 (5th cent.)
ἕκκτης (for ἕκτης) *BGU* 1049.26 (A.D. 342); *PSI* 1077.5 (A.D. 354)
ἕκκτον (for ἕκτον) *POxy.* 1738.15 (3rd cent.)
cf. Ἰάκκωβος (for Ἰάκωβος) *PCairMasp.* 30.1 (A.D. 531 ?)

2) In final position:

ἐκ|κ (for ἐκ) τῆς *POxy.* 487 = *MChr.* 322.8-9,17 (A.D. 156); sim. *POslo* 37.14 (A.D. 295); *PLBat.* xi, 10.15 (6th cent.)
οὐκκ (for οὐκ) ἐταριχεύσαμεν *POxy.* 1299.8 (4th cent.)

c. ττ > τ:

ἐλατουμένου (for ἐλαττουμένου) *PMich.* 276.34 (A.D. 47); *PLond.* 139a (ii, 200-1).7-8 (A.D. 48); sim. *POxy.* 306 = *PCairPreis.* 43.24 (A.D. 59); *PStrassb.* 74 = *PSarap.* 2.19 (A.D. 126); etc.
ἔλατον *PMich.* 582 ii.21 (A.D. 49/50); *PStrassb.* 267.12 (A.D. 126-8); sim. *PLBat.* xiii, 14.28 (2nd cent.)
πράτωσιν (for πράττωσιν) *POxy.* 2265.9 (A.D. 119)
πιτάκ(ιον) (for πιττάκιον) *POxy.* 142.12, corr. 13 (A.D. 534)

d. τ > ττ:

μεμέττρη(κεν) (for μεμέτρηκεν) *OMeyer* 47.1 (A.D. 77)
κατт' (for κατ') ὄνομα *POxy.* 2151.12 (3rd cent.)
cf. Δομιττιανοῦ (for Δομιτιανοῦ *Domitianus*) *PAmh.* 103 = *PSarap.* 29.5, corr. 7 (A.D. 90); etc.

e. ππ > π:

ἵπον (for ἵππον) *PSI* 39.5 (A.D. 148)
καπαρίων (for καππαρίων) *PGen.* 62 = *PAbinn.* 16.17 (ca. A.D. 346)

f. π > ππ.

1) Before τ:

λεππτόν, λεππτότερον (for λεπτ-) *SB* 8030 = *PMich.* 245.22,23 (A.D. 47)
ἀναπόριππτον (for ἀναπόρ(ρ)ιπτον) *PMich.* 281.4 (1st cent.)
γέγραππται (for γέγραπται) *CPR* 4 = *MChr.* 159.18 (A.D. 51/53); *PMich.* 334.14 (A.D. 52)
ἐκπεππτωκότας (for ἐκπεπτωκότας) *PFay.* 91.16 (A.D. 99)
ἑπ
πτά (for ἑπτά) *OTaitAsh.* 17.7 (A.D. 129)

2) In other positions:

λοιππογρα(φουμένων) (for λοιπο-) *POxy.* 2112.15 (late 2nd cent.)
δεσπποτῶν (for δεσποτῶν) *BGU* 1623.8 (3rd cent.)

g. φ > φφ:

ὑπογεγραφφότας (for -γραφότας) *BGU* 913.3 (A.D. 206)

h. ξ > ξξ:

ὄξξου (for ὄξου(ς)) *OTaitPetr.* 295.8 (ca. A.D. 6-50)
ἐξξεζήτησα, ἐξξῆλθεν (for ἐξεζήτησα, ἐξῆλθεν) *POxy.* 2986.2,10 (2nd/3rd cent.)

i. ψ > ψψ:

ἔγραψψα (for ἔγραψα) *PSI* 473.19 (A.D. 168/73)

j. β > ββ:

ὕββριν (for ὕβριν) *PMich.* 229.20; 230.17 (A.D. 48)

k. δ > δδ:

ὀγδδοῦ (for ὀγδόου) *OTaitPetr.* 275.8 (A.D. 48)
ἀδ|δελφοῦ (for ἀδελφοῦ) *PSI* 916.3-4 (1st cent.)
cf. Κλαυδδίου (for Κλαυδίου *Claudius*) *POxy.* 285.16 (ca. A.D. 50)
Ἁδδριανοῦ (for Ἁδριανοῦ *Hadrianus*) *PMich.* 204.13 (A.D. 127)

Note. In light of the above evidence for the identification of single and double consonants, the occasional use of a diacritical mark (usually written ʼ) mainly from the third century on to separate two identical as well as two different consonants does not indicate that each of the identical consonants was pronounced separately.[1] Although two-thirds of the occurrences of this diacritical mark separate a nasal (written irregularly γ or ν) from a following velar stop, and others separate two different consonants, the diacritical mark is also used to separate two identical consonants which are frequently simplified, as in the examples above.

1. Separating a nasal from a following velar stop:

ἀγʼγήων (for ἀγγείων) *PPetaus* 86 (*PMich.inv.* 6871).11 (A.D. 185)
[τ]υγʼχάνοντα *BGU* 96.7 (prob. 2nd half 2nd cent.); sim. *PMich.* 530.4 (3rd/4th cent.); *PSI* 452.19 (4th cent.)

[1] As interpreted by Schwyzer i, 231.

παραγ'γελεί[σης *SB* 10275.5 (A.D. 204-10); sim. *PYale* 61.12-13 (ca. A.D. 208-10); *PStrassb.* 243.7-8 (A.D. 216); *BGU* 7 i.3 (ca. A.D. 247); *SB* 7249 = *PMich.* 217.3 (A.D. 296); *POxy.* 71 i = *MChr.* 62.8 (A.D. 303); *PMich.* 624.29 (early 6th cent.)

ἐγ'γύης *POxy.* 1408.5, sim. 7,9 (ca. A.D. 210-14); sim. *POxy.* 1554.4 (A.D. 251); *PMich.* 573.1-4 (A.D. 316); *POxy.* 1626.3 (A.D. 325); *POxy.* 1969.8 (A.D. 484); etc.

'Οξυρυγ'χίτῃ *PMerton* 25.6 (A.D. 214); sim. *POxy.* 1662.3 (A.D. 246); *POxy.* 118.35 (late 3rd cent.); *POxy.* 102.6 (A.D. 306); *POxy.* 85 ii.2, iv.2 (A.D. 338); etc.

ἐπάναγ'κον *PMerton* 25.9 (A.D. 214); *POxy.* 2721.32 part. rest. (A.D. 234); *PMich.* 573.11 part. rest. (A.D. 316); *PMerton* 37.8 (A.D. 373); etc.

Λογ'γείνου *PLeit.* 16.2,32 (A.D. 244-7); sim. *PAlex.* 28.1,31 (3rd cent.); *POxy.* 1961.2 (A.D. 487)

προήνεγ'κας *PAlex.* 28.4, sim. 21 (3rd cent.); sim. *POxy.* 1115.6,12 (A.D. 284); *SB* 7247 = *PMich.* 214.20,30,31 (A.D. 296); *POxy.* 1159. 23-24 (late 3rd cent.); *OFay.* 21.1 (A.D. 306); *PFay.* 136.7 (4th cent.); etc.

ἐγ'καλεῖν *PStrassb.* 280.11, sim. 19 (A.D. 273)

ἀναγ'καίου *POxy.* 41 = *WChr.* 45.16 (ca. A.D. 300); sim. *POxy.* 120 R.19 (4th cent.); *POxy.* 1970.20 (A.D. 554)

ἐγ'γεγραμμένους *POxy,* 2675.14 (A.D. 318); sim. *BGU* 21 i.10,11 (A.D. 340); *POxy.* 2032.24 (6th cent.)

ἔγ'γραφον *POxy.* 125.11 (A.D. 560)

συγ'γουλαρ(ίοις) *POxy.* 2047.7 (5th cent.)

καταγ'γισμόν *POxy.* 1912.128 (late 6th cent.)

2. Separating a nasal[1] from a consonant other than a velar stop:

]γ'μένῃ *PAntin.* 98.5 (2nd cent.)

πρᾶγ'μα *PThead.* 15.6 (A.D. 280/1); sim. *PMich.* 530.2 (3rd/4th cent.); *POxy.* 71, ii.16 (A.D. 303); *BGU* 1027 = *WChr.* 424 i.13 (4th cent.)

τιναγ'μόν *PFlor.* 246*.12-13, sim. 15 (A.D. 258)

δράγ'ματα *PFlor.* 322.46 (A.D. 258 ?)

πρόσταγ'μα *POxy.* 2665.11 (A.D. 305/6)

μαμ'πίων (for μαμπίον) *POxy.* 1741.17 (early 4th cent.)

3. Separating two identical consonants.

a. -ττ-:

ἀη]τ'τήτων *PAlex.* 6 = *PAlexGiss.* 3.7 (A.D. 201/2); in full *BGU* 362 xi.17 (A.D. 215); sim. *SB* 7517.5 (A.D. 211/12); *PSI* 1261.8 (A.D. 212-17)

[1] For the [ŋ] pronunciation of γ before μ, see below, pp. 176-7.

θαλάτ'της *SB* 9218.17 (A.D. 319/20); sim. *POxy.* 87 = *WChr.* 446.7 (A.D. 342)
πράτ'τειν *PJand.* 97.10 part. rest. (mid 3rd cent.); *POxy.* 1770.6 (late 3rd cent.); *PPrinc.* 101.3 (4th cent.); etc.
ἐλατ'τουμέν[ου] *PMich.* 615.34, sim. 31 (ca. A.D. 259)
ἔλατ'τον *POxy.* 1475.21 (A.D. 267); *POxy.* 2476.43 (A.D. 288: *BL* v, 82); sim. *SB* 9253.9 (early 4th cent.); *PPrinc.* 119.35 (ca. A.D. 325: *ZPE* viii, 15); etc.
ἐφύλατ)τον *PLond.* 214 = *WChr.* 177.14 (A.D. 270/5); sim. *POxy.* 1890.14 (A.D. 508); *POxy.* 138.36 (A.D. 610/11)
ὁλοκότ'τινος *POxy.* 1653.18 (A.D. 306); sim. *PMerton* 46.5 (late 6th cent.)
κρίτ'τ[ο]νι (for κρείττονι) *SB* 9218.18, in full 21 (A.D. 319/20); sim. *PCairMasp.* 151.35 (A.D. 570)
πιτ'τάκιον *PMerton* 44.3 (5th cent.); *PJand.* 25.2 (6th/7th cent.); sim. *POxy.* 1996.5 (5th/early 6th cent.); *POxy.* 143.6 (A.D. 535); 146.6 (A.D. 555); *PGrenf.* ii, 90.26 (6th cent.); etc.
ἧτ'τον *PCairMasp.* 158.21 (A.D. 568)

b. -λλ-:

πολ'λῶν *PMich.* 529.43 (A.D. 232-6)
ἀλ'λά *POxy.* 2558.4 (ca. A.D. 303-6)
ἀντικ[ατα]λ̣'λαγῆς *PMich.* 612.11 (A.D. 514)
'Αρίλ'λας, 'Απολ'λῶ *POxy.* 2058.64,71 (6th cent.)
μέλ'λει *POxy.* 1933.16 (6th cent.)

c. -μμ-:

προγεγραμ'μένα *PCairMasp.* 168.48 (6th cent.)
ἀρχισυμ'μάχῳ *POxy.* 1933.14 (6th cent.)
γραμ'μάτω(ν) *POxy.* 128.6 (6th/7th cent.)

d. -νν-:

'Ιωάν'νην *POxy.* 128.3 (6th/7th cent.)

e. -σσ-:

θυγατρός' σοι *POxy.* 129 = *MChr.* 296.2 (6th cent.)
δισ'σ(όν) *POxy.* 136 = *WChr.* 383.41 (A.D. 583)

f. -ππ-:

σίπ'πια *POxy.* 2154.19 (4th cent.); sim. *POxy.* 1943.3 (late 5th cent.); *PJand.* 132.5 (6th/7th cent.)
ἵπ'π(ων) *POxy.* 145.1 (A.D. 552); sim. *StudPal.* viii, 1131.1 (6th cent.); *POxy.* 2052.7 (ca. A.D. 579); *POxy.* 152.2 (A.D. 618)

g. -θθ-:

Γ[ο]θ'θικοῦ *POxy.* 1633.33 (A.D. 275)
cf. Γοτ'τικοῦ *POxy.* 1713.21 (A.D. 279)

4. Separating two different consonants:

διελ'θόντι *POxy.* 70.12 (A.D. 212/13: *BL* i, 314)
ἐγ'λόγου, ὄγ'δον *PFlor.* 372.2,17 (3rd cent.)
ὀγ'δόη[ς] *PWürzb.* 18.15 (4th cent.)
ὁλ'κῆς *POxy.* 1142.5 (late 3rd cent.)
φιλ'τάτῳ *PMich.* 623.4 (A.D. 299 ?)
ἐκ'σκέπτορι *POxy.* 1139.2 (4th cent.)
ἀρ'γυρικῶν *PGrenf.* ii, 97 = *StudPal.* iii, 318.3 (6th cent.)
ἐλεουρ'γ(ῷ) *StudPal.* viii, 894.1 (Byz.)
Χρυσ,τοῦ (for Χριστοῦ) *StudPal.* iii, 355.1 (7th/8th cent.)

5. In other positions, including between a consonant and a vowel, between vowels, and between consonants in the same syllable:

'Οξυρύγχ'ων *PLBat.* xvi, 13.1 (early 2nd cent.)
λοι'πά *PMich.* 529.31 (A.D. 232-6)
ἅπαξ' κατ|ηξίωσας *POxy.* 1766.4-5 (3rd cent.)
μετ'ερμη'νευ'θῆναι (for μεθ-) *POxy.* 43 R, vi.18 (A.D. 295)
σ'χῖς (for σχῆς) *PMerton* 38.26 (mid 4th cent.)
γ'νωσθῆναι *PWürzb.* 18.6 (4th cent.)
νομίσματα' 'Αλεξανδρείας *POxy.* 136 = *WChr.* 383.30 (A.D. 583)
τοῦ' ὀξέως *POxy.* 154.11 (7th cent.)
καὶ' γάρ' οὐκ, παρά' τῶν' τῆς χώρ'ας *PLond.* 1380.9,15 (A.D. 710/11)
σαφηνίζων' ἐν, καὶ' ἀπό, π'ρός *PRossGeorg.* iv, 5.21,24,26 (8th cent.)

G. ASSIMILATION[1]

1. Assimilation of nasals.

There is considerable irregularity in the orthographic practice of representing the assimilation of a nasal to the following consonant. In general, unassimilated spellings predominate in final position, are common in composition, and are infrequent within a simple word. Complete assimilation of medial nasals is also found occasionally.

[1] Schwyzer i, 213-16, 406-10; Lejeune, §48-52, 58, 60-61, 327-30; Buck, *GD*, §86-88, 90, 96-100; *MS*, 105-14; Schweizer, 126-9, 135-7; Nachmanson, 97-109; Hauser, 68-74; Rüsch, 253-72; Mayser i², 1, 198-210; Crönert, 53-65, 91-92; *BDF*, §19; Psaltes, 91-95, 99-101.

There is little change from century to century in the practice of representing assimilation in word-junction and within a simple word, but in composition unassimilated spellings predominate in all phonetic conditions in the papyri of the Roman period in the following ratios: first century 10 : 1; second century 5 : 1; third century 4 : 1; fourth century 5 : 2; assimilated and unassimilated spellings appear in approximately equal proportion in papyri of the fifth century; and assimilated spellings are used predominantly in papyri of the sixth through the eighth centuries.

These phenomena indicate that all nasals were assimilated to the point of articulation of the following consonant in the speech of the writers of the papyri.

a. In word-junction.

Final -ν normally remains -ν before every consonant, as in modern editorial practice; but it is sometimes assimilated in writing to μ before another μ, before a labial stop, and also improperly before another consonant or vowel or *in pausa*. Final -ν also sometimes appears as γ before a word beginning with a velar stop.[1]

1) Before μ:

ἀντιφώνησόμ (for -σον) μοι *POxy.* 2979.16 (3 B.C.)
ὑπάρχουσάμ (for -σαν) μοι *PLond.* 262 = *MChr.* 181.3 (A.D. 11)
πέμψεμ (= πέμψεν for πέμψον) μοι *POslo* 153.23-24 (early 2nd cent.); sim. *PFlor.* 208.5 (A.D. 256)
εὐδοκῖμ (for εὐδοκεῖν) με *POxy.* 1704.21 (A.D. 298)
ἔχιμ μαι (for ἔχειν με) *PPrinc.* 79.6 (A.D. 326)
ἔδωσέμ μωι (for ἔδωσέν μοι) *SB* 9139.4 (6th cent.)
ἐμ (for ἐν) μηνί *SB* 7341.14 (A.D. 3); *PMed.* 5.12 part. rest. (A.D. 8/9); *SB* 9110.13 (A.D. 26); *SB* 5110 = *PRyl.* 160d, ii.14 (A.D. 42); *PMil-Vogl.* 108.7 (A.D. 102); 104.24 (A.D. 127/8); cf. *SB* 6188.4; 6189.4; 6190.3-4; 6192.6-7, inscrr. (Xtn.)
ἐμ μισθώσι (for ἐν μισθώσει) *PMich.* 348.12 (A.D. 27); sim. *POxy.* 912.9 (A.D. 235)
ἐμ μέρεσι *PHamb.* 30.35 (A.D. 89)
ἐμ μηδενί *PLeit.* 12.18 (A.D. 210/11); *POxy.* 1196.17 (A.D. 211-12); *POxy.* 1261.11 (A.D. 325); *PLBat.* xi, 3.13 (A.D. 325); *PMon.* 14.66 (A.D. 594)
ἐμ μετανοίᾳ *POxy.* 2270.12 (twice), 13 (early 5th cent.)
ἐμ μέν *PHarris* 158 V.1 (5th/6th cent.)
μέμ (for μέν) μοι *POxy.* 253.22 (A.D. 19); 240.8 (A.D. 37); 1258.10 (A.D. 45); 2957.27 (A.D. 91)
ἐάμ (for ἐάν) μοι *SB* 3924.44 (A.D. 19)
ἄμ (for (ἐ)άν) μή *SB* 5110 = *PRyl.* 160d, ii.17 (A.D. 42); *SB* 9636.21

[1] In the Ptol. papp., assimilation of -ν in word-junction (espec. to μ before a labial, incl. μ) is found much more frequently than in Rom. and Byz. papp. (see Mayser i², 1, 203-6).

(A.D. 136); *POxy.* 119.8,14 (2nd/3rd cent.); *POxy.* 121.9 (3rd cent.); *PLond.* 417 = *PAbinn.* 32.11 (ca. A.D. 346); *SB* 9140.11 (7th cent.)
κἂμ (for καὶ (ἐ)ὰν) μή *SB* 8091.19 (3rd cent.)
ἀποχὴμ (for ἀποχὴν) μου *PHamb.* 39 HH ii.7-8 (A.D. 179)
πρίμ μη (for πρίν με) *PLond.* 1157 V = *MChr.* 199.7 (A.D. 246)

2) Before a labial stop:
ἐμ (for ἐν) πίστει *SB* 6663.16 (prob. 6/5 B.C.)
ἐμ Φιλαδ[ελ]φ[ε]ίᾳ *SB* 7341.4 (A.D. 3)
ἐμ προσφορᾶς (for ἐν προσφορᾷ) *PMich.* 343.6 (A.D. 54-55)
ἐμ πρυτανίῳ *SB* 6016.17 (A.D. 154)
ἐμ πυρικοῖς *PLond.* 924 = *WChr.* 355.9-10 (A.D. 187/8)
ἐμ φανερῷ *PLBat.* xiii, 5.8 (3rd cent.)
ἐμ προστασίᾳ *POxy.* 136 = *WChr.* 383.15 (A.D. 583)
τὸ μὲμ (for μὲν) πρῶτον *BGU* 665 ii.12 (1st cent.); sim. *BGU* 843.2-3 (1st/2nd cent.)
ἔχ]ομεμ (for -μεν) παρά *BGU* 664.3, with [ἀ]ποδόσωμεμ (for -δωσομεν) ἐξ 5 (1st cent.)
ἀπέσχομ (for ἀπέσχον) παρά *PLBat.* i, 12.4-5 (A.D. 179)
ἔσχομ παρά *SB* 10270, 25.3 (A.D. 222-35)
ἣμ παραδώσι (for ἣν παραδώσει) *PMich.* 343.7, sim. 6 (A.D. 54-55)
cf. ἥμπερ (for ἥνπερ) *POxy.* 1208.24 (A.D. 291); *POxy.* 1704.20 (A.D. 298); *PHamb.* 21.5 (A.D. 315); ὅμπερ (for ὅνπερ) *POxy.* 2766.17 (A.D. 305)
ὃμ (for ὃν) βούλει *SB* 9931.8 (A.D. 330)
σὺμ βρονησίῳ (for σὺν προνησίῳ) *POxy.* 1199.17 (3rd cent.)
σὺμ φοινίκων *SB* 4483.7 (7th cent.)
τὴμ (for τὴν) πρᾶσιν *PPar.* 21b.30 (A.D. 592); sim. *SB* 4689.7 V (Byz.); cf. *SB* 355.3, inscr. (n.d.)

3) Before a velar stop:
ἐγ γένι (for ἐν γένει) *PFay.* 90.11 (A.D. 234)
ἐγ γράμμασιν *POxy.* 129 = *MChr.* 296.5 (6th cent.)
cf. ἐγ κώμῃ *PColt* 24.2 (A.D. 569)

4) Improperly before another consonant or vowel or *in pausa*:
λόγομ (for λόγον) ἀπό *PLond.* 256 R a = *WChr.* 443.8 (A.D. 15)
χαίρειμ. ὁμολογῶι, ὧμ ὀφίλις (for χαίρειν. ὁμολογῶ, ὧν ὀφείλεις) *PLond.* 172 (ii, 205).2,3, with χιρ[όγρα]φομ (for χειρόγραφον) παραθήκης 3-4 (A.D. 105)
τὸν ὅρκομ *in pausa* *PLBat.* xvi, 16.20 (A.D. 140)
ὠνῶμ (for ὠνῶν) ἐν *SB* 10206.8 (A.D. 148)
ἀρουρῶμ τεσσάρωμ (for ἀρουρῶν τεσσάρων) ὡς *PBas.* 5.15-16 (3rd cent.)
σὺμ (for σὺν) χρηστηρίοις *SB* 4753.7 (Byz.)
cf. ἐμ (for ἐν) εἰρήνῃ *SB* 7297 inscr. (Xtn.)

b. In composition.

ν is more frequently assimilated in composition than between words, but here also tends to be left unassimilated in writing in papyri of the first four centuries.[1] This occurs before consonants of all types: velar, labial, liquid, nasal, and sibilant.

1) Before a velar stop:

ἐνκαλῶι *SB* 10234.13 (A.D. 35); 10256.7 (A.D. 54-68); *POxy.* 272.25 (A.D. 66); etc.

ἐνκαλεῖν *CPR* 187.14 (1st/2nd cent.); *POxy.* 237 vi.5; viii.15 (A.D. 186); etc.

ἐνγράπτου *POxy.* 268 = *MChr.* 299.16 (A.D. 58); *PAmh.* 110.24 (A.D. 75); 111.22 (A.D. 132); etc.

ἐνγράφου *BGU* 970 = *MChr.* 242.18 (A.D. 177); sim. *POxy.* 70.4 (A.D. 212/13: *BL* i, 314); *POxy.* 71 i = *MChr.* 62.19 (A.D. 303); *POxy.* 67 = *MChr.* 56.20 (A.D. 338); etc.

ἐνκύκλιον *PTebt.* 350.5 (A.D. 70/71); *PFlor.* 81.11 (A.D. 103); *POxy.* 95 = *MChr.* 267.26 (A.D. 129); etc.

ἐνκτήσεων *PRyl.* 103.21 (A.D. 134); *POxy.* 237, v.10,17,43; viii.29-30,32 (A.D. 186); etc.

ἐνχιρῖν (for ἐνχειρεῖν) *POxy.* 105 = *MChr.* 303.7 (A.D. 117-37); sim. *PFay.* 124.8-9 (2nd cent.); *PAmh.* 136.13 (3rd cent.); etc.

συνγραφάς *PMed.* 7.17 (A.D. 38); *PFlor.* 81.6 (A.D. 103); sim. *PAmh.* 71.8 (A.D. 178/9); etc.

συνγεγραμμένα *POxy.* 707.35-36 (ca. A.D. 136); sim. *POxy.* 1473.39 (A.D. 201); *POslo* 64.4 (5th cent.); etc.

συνκυρόντων *POxy.* 99.6, sim. 16 (A.D. 55); *PRyl.* 155.9,10 (A.D. 138-61); *PFlor.* 56 = *MChr.* 241.14 (A.D. 234); etc.

συνγενοῦς *PHarris* 70.6 (A.D. 62); *PFay.* 91.8 (A.D. 99); *PHamb.* 10.3 (2nd cent.); etc.

συνκομιδῆς *PAmh.* 91.22 (A.D. 159); *PMich.* 423-4.11, sim. 20-21,27 (A.D. 197); *PFay.* 135.3 (4th cent.); *PFlor.* 280.15 (A.D. 514); etc.

συνκείμενα *POxy.* 237 iv.12 (A.D. 186); sim. *POxy.* 1642.36 (A.D. 289); etc.

συνχωρῶ *POxy.* 104.10 (A.D. 96); sim. *BGU* 729 = *MChr.* 167.8 (A.D. 144); *PFlor.* 47.5,26 (A.D. 213/17); etc.

2) Before a labial stop:

ἔνπροσθεν *PMich.* 345.16 (A.D. 7); *PVindobWorp* 16.11 (A.D. 53); *CPR* 1 = *StudPal.* xx, 1.16,32 (A.D. 83/84); *PMilVogl.* 23.1 (A.D. 108); *PLBat.* vi, 21.17 (A.D. 122); *BGU* 394.18 (A.D. 137); *PMich.* 428.8 (A.D. 154); etc.

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[1] See ratios above, p. 166. In the Ptol. papp., assimilated spellings predominate 4 : 1 in the 3rd cent. B.C., but appear in approx. equal frequency with unassimilated spellings in the 2nd cent. B.C. (Mayser i², 206-9). Assimilation is the rule in Dura-Europos texts from the 2nd cent. B.C. through the 1st cent. A.D.; after this it is rare (*PDura*, p. 47).

ἐνπορίας *PGiss.* 9.3 (ca. A.D. 117)
ἐνπόρῳ *POxy.* 1519.8 (mid 3rd cent.)
ἐνπόδιον *BGU* 2031.25 (A.D. 180-92); *POxy.* 63.18 (2nd/3rd cent.); 1104.15 (A.D. 306)
ἐνποδών *PLBat.* xvi, 35.31 (A.D. 144+); *PPrinc.* 102.7 (4th cent.)
ἐνπροθέσμως *POxy.* 61.12 (A.D. 221); sim. *SB* 5273 = *StudPal.* xx, 128.16 (2nd hand), with ἐμπ. 9 (1st hand) (A.D. 487)
ἐνπεριεχομένοις *PHermRees* 24.9, with ἐμπ. 10 (late 4th/early 5th cent.); sim. *PCairMasp.* 295 iii.25 (6th cent.); *PLond.* 1711.62 (A.D. 566-73)
ἐνβέβλημαι *PPrinc.* 186.3 (A.D. 28); sim. *PPrinc.* 26.17 (ca. A.D. 154)
ἐνβαλοῦμαι *POxy.* 717.1 (late 1st cent.)
ἐνβατοῦ (for ἐμβαδοῦ) *PMich.* 280.3 (1st cent.)
ἐνβολήν *POxy.* 528.23 part. rest. (2nd cent.); *BGU* 15 ii.3 (A.D. 197?); sim. *PPrinc.* 26.12-13 (ca. A.D. 154); *POslo* 88.19 (late 4th cent.)
ἐνφανής *POxy.* 1021 = *WChr.* 113.2-3 (A.D. 54); *POxy.* 2764 C.18 (A.D. 277); sim. *PFlor.* 83.8 (3rd/4th cent.)
ἔνφασιν *POxy.* 2274.10 (3rd cent.)
ἐνφερομένην *PLond.* 974 = *WChr.* 429.6 (A.D. 305/6)
συνπεπτωκ(υίας) *POxy.* 1188.24 (A.D. 13); *SB* 5109 = *PRyl.* 160d, i.2-3 (A.D. 42); *POxy.* 248.28-29, 30-31 (A.D. 80); *POxy.* 75.27-28 (A.D. 129)
συνπράξῃ *SB* 9017 (8).5-6 (1st/2nd cent.); sim. *BGU* 388 = *MChr.* 91 ii.11 (2nd half 2nd cent.)
συνπράττοντος *PAntin.* 95.13 (6th cent.)
σύνπαντι *PFay.* 95.13 (2nd cent.); 34.12 (A.D. 161); sim. *BGU* 646 = *WChr.* 490.23 (A.D. 193); etc.
συνπεφωνημένης *POxy.* 505 = *MChr.* 350.8 (2nd cent.); *PBerlLeihg.* 21.8 (A.D. 309); sim. *PGen.* 10.13 (A.D. 323); *PMichael.* 45.34 (A.D. 540); *PCairMasp.* 163.24 (A.D. 569)
σύνβιον *SB* 6823.6 (A.D. 41-54); *PGiss.* 12.8 (ca. A.D. 117); sim. *PCairMasp.* 295 ii.11 (6th cent.); etc.
cf. συνπβίου *SB* 1068 (n.d.)
συνβάλλεται *POxy.* 472 = *MChr.* 235.23 (ca. A.D. 130); sim. *POxy.* 2602.8-9 (early 4th cent.)
συνβουλεύω *PGen.* 1.8 (A.D. 213: *BL* i, 156)
συνβοηθῆσαι *PAmh.* 145 = *WChr.* 53.21 (ca. A.D. 400)
σύνφυται (for σύμφυτα) *PMich.* 311.34 (A.D. 34); sim. *POxy.* 729.22 (A.D. 137); *BGU* 710.21 (A.D. 146/7)
σύνφορον *POxy.* 1676.25 (3rd cent.)
συνφω(νῶ) *POxy.* 2914 ii.15 (A.D. 269)

3) Before a liquid:

ἐνλείψοντα *PRyl.* 178.5 = *PRein.* 103.23 (A.D. 26); sim. *PSI* 203.10 (A.D. 87); *PAmh.* 136.10 (3rd cent.)
ἐνλιπές *PRein.* 115.3-4 (A.D. 261 ?)
ἐνλογεῖν *BGU* 140 = *MChr.* 373.32 (A.D. 119); sim. *PRyl.* 243.11 (2nd cent.); etc.

ἐνλογηθέντα *PLond.* 359 (ii, 150).4 (1st/2nd cent.); *POslo* 183.6 (3rd cent.); sim. *PStrassb.* 32.10 (A.D. 261); etc.

συνλαβεῖν *PMich.* 421.22 (A.D. 41-54)

συνλαβών *PRyl.* 145.10 (A.D. 38); 151.10 (A.D. 40)

συνλαβέσθαι *PGiss.* 75.3 (ca. A.D. 117)

συνλαμβανόμενος *PGiss.* 25.4 (ca. A.D. 117); sim. *PThead.* 23 = *PAbinn.* 44.13 (A.D. 342)

συνλαβοῦ *PMich.* 487.11 (2nd cent.); sim. *POxy.* 1064.7-8 (3rd cent.); etc.

συνλεγόμενον *POxy.* 2190.52 (late 1st cent.); sim. *BGU* 698.23,25 (2nd cent.); etc.

σύνλεξον *POxy.* 2681.12 (3rd cent.); sim. *PGrenf.* ii, 77 = *WChr.* 498.11 (late 3rd/early 4th cent.); *PLond.* 1916.24 (A.D. 330-40); etc.

συνράψαι *PMon.* 6.53 (A.D. 583)

4) Before a nasal:

ἐνμενέτωσαν *PAberd.* 53, frag. 2.9 part. rest., with ἐμμ- 12 (A.D. 10/11); *SB* 7031 = *PMich.* 186.19 (A.D. 72); *SB* 7032 = 187.18 (A.D. 75)

ἐνμένων *PSI* 903.22 (A.D. 47); etc.

ἐνμεῖναι *POxy.* 38 = *MChr.* 58.16 (A.D. 49-50)

ἐνμέλιαν (for ἐμμέλειαν) *PBeattyPanop.* 1.187 (A.D. 298)

σύνμικτον (for σύμμικτα) *PMich.* 343.6 (A.D. 54-55); sim. *PRossGeorg.* ii, 15.10 (A.D. 98-102); *POxy.* 2228.44,45 (A.D. 285: *BL* v, 81)

συνμορίας *PTebt.* 316 = *WChr.* 148.4 (A.D. 99)

συνμένειν *PLeit.* 5.44-45 (ca. A.D. 180); sim. *PGen.* 42.20 (A.D. 224)

συνμένοντες *PLond.* 924 = *WChr.* 355.19 (A.D. 187/8); sim. *PAmh.* 124 ≐ *WChr.* 152.1 (2nd cent.)

5) Before a sibilant:

συνσταθμίαν *PMerton* 12.17 (A.D. 58)

συνσταθέντα *PBeattyPanop.* 1.102 (A.D. 298)

συνστρατιώτας *SB* 9017 (9).22, etc. (1st/2nd cent.); sim. *BGU* 4.6 (2nd/3rd cent.); *WO* 1129.6 (A.D. 207); 1131.5 (A.D. 212); *PMeyer* 20.10,13 (1st half 3rd cent.); *PGrenf.* i, 53 = *WChr.* 131.6 (4th cent.)

συνσκυλῆθ̣ι̣ *POxy.* 63.12 (2nd/3rd cent.); sim. *POxy.* 2275.19 (1st half 4th cent.)

συνσαρωθῆναι *SB* 8000 = *PMed.* 81.17 (4th cent.)

c. In simple words.

Medial nasal in simple words is normally assimilated, but unassimilated, undifferentiated spellings with ν appear occasionally at all periods of the papyri before a velar or labial stop.

1) Unassimilated ν before a velar stop:

ἐνένκαι *POxy.* 269 ii.12 (A.D. 57); sim. *PFay.* 119.10 (ca. A.D. 100); *BGU* 38.23-24 (2nd/3rd cent.: *BL* i, 10); etc.

ἐπιτυνχάνοντι *POxy.* 72.7-8 (A.D. 90); sim. *POxy.* 2266.14-15 (A.D. 266-7)
ἀνάνκην *SB* 7352 = *PMich.* 490.6 (2nd cent.); *WO* 1153.6 (Rom.); sim. *PHamb.* 70.29 (A.D. 144/5+)
ἐνγύς *SB* 7247 = *PMich.* 214.8 (A.D. 296); *POxy.* 2154.18 (4th cent.); etc.
ἐνγυτέρω *PHarris* 68.9 (A.D. 225); sim. *PRossGeorg.* iii, 9.11-12 (4th cent.)
cf. ἔνγιστα *PMur.* 114.14 (A.D. 171 ?)
ἄνγελον *SB* 10269.3, sim. 5 (6th cent.)
cf. ἀνγέλων *Archiv* ii, pp. 451-2, #94.1,3, inscr. (A.D. 316)
cf. Λονγεῖν[ο]ν *Longinus PMich.* 466.12 (A.D. 107); sim. *PMich.* 476.24 (early 2nd cent.); etc.

2) Unassimilated ν before a labial stop:

πένπτῃ *BGU* 1146 = *MChr.* 106.12,13,14 (19 B.C.); sim. *PMich.* 280.3, with πεμπ. 2 (1st cent.); *StudPal.* viii, 980.4 (6th cent.); etc.
λανβάνοντος *PMich.* 276.10,32 (A.D. 47); sim. *POxy.* 526.5-6 (2nd cent.)
μένφομαι *POslo* 150.2 (1st cent.); *PFay.* 111.3 (A.D. 95/96); 112.14 (A.D. 99); sim. *PFay.* 21.16 (A.D. 134)
ἀνφότεροι *PTebt.* 316 = *WChr.* 148.13,21 part. rest. (A.D. 99); sim. *PLond.* 324 = *WChr.* 208.18,24 (A.D. 161); *PMich.* 425.12 (A.D. 198)
ἔπενψα *POxy.* 1155.12 (A.D. 104); *PJand.* 137.26 (2nd cent.); sim. *SB* 7662.10 (late 2nd cent.); *PFlor.* 366.3,21 (2nd/3rd cent.); *PHamb.* 54 ii.6-7 (late 2nd/early 3rd cent.)
ἀνπελõνα (for ἀμπελῶνα) *POxy.* 729.35 (A.D. 137)
ἀνπύλλης *BGU* 40.2 (2nd/3rd cent.: *BL* i, 11)
ἀνφόδου (for ἀμφόδου) *PThead.* 1.17 (A.D. 306)
cf. Νοενβρίων *PMur.* 115.1 (A.D. 124); ἐξονπλάριν *exemplarium POxy.* 1066.7 (3rd cent.)

d. Complete assimilation.

A nasal is assimilated completely to a following consonant in a few words. The velar nasal is sometimes assimilated to κ[1] and the labial nasal to β, although β is more often assimilated to μ in the latter cluster.

1) -γκ- > -κκ-:

ἐπάνακκον (for ἐπάναγκον) *BGU* 50 = *MChr.* 205.13 (A.D. 115)
ἀνάκκης (for ἀνάγκης) *POxy.* 1288.26 (4th cent.)
ἔνεκκε (for ἔνεγκον) *PBaden* 100.12: *BL* ii, 2, 186 (late 1st cent.); sim. *BGU* 33.9-10 (2nd/3rd cent.: *BL* i, 10); *POxy.* 2599.34 (3rd/4th cent.)
προενεκκαμένης *PMilVogl.* 25 iv.29 (A.D. 126/7)
ἀνήνεκκεν *SB* 9190.16 (A.D. 131)
παρενέκκατω (for παρηνέγκατο) *SB* 9373.9 (2nd cent.)

[1] For the loss/assimilation of γ before μ or ν, see below, pp. 176-7.

ἀπενέκκω *BGU* 246.15 (2nd/3rd cent.); sim. *BGU* 223.9 (A.D. 210/11); *PHamb.* 42.9 (A.D. 216)
ἀπενέκκειν *POxy.* 119.3 (2nd/3rd cent.)
ἀπενεκκάμενοι *PRyl.* 358.6 (prob. A.D. 216/17)
παρήνεκκας *OMich.* 257.5 (A.D. 309)
πρίκκιπος (for πρίγκιπος *princeps*) *PFlor.* 36 = *MChr.* 64.19 (A.D. 312)

2) -μβ- > -ββ-:

μεταλαββάνων (for μεταλαμβάνων) *POslo* 153.10 (early 2nd cent.)
but ἀπολαμμάνοντα *PLBat.* vi, 19.4-5 (A.D. 118); sim. *BGU* 80 = *BGU* 446.24 (A.D. 169-77: *BL* iii, 13); *SB* 7529.13 (2nd/3rd cent.); *PMich.* 514.11 (3rd cent.)
cf. λαβμανόντων *PGrenf.* ii, 67 = *WChr.* 497.10 (A.D. 237)

3) Others:

Ἀπύχχις (for Ἀπύγχις) *PTebt.* 639.10 descr.: *BASP* ix, 13-15 (ca. A.D. 198)
συππεφωνημένης (for συμπεφωνημένης) *CPR* 220.5 (1st cent.)
πασσόφωι (for πανσόφῳ) *PHermRees* 3.1,V (4th cent.)

The frequent assimilation of nasals in writing indicates that at some stage there must have been actual assimilation in speech. The writing of ν before velars and labials can be explained on orthographic grounds. The relative frequency of the assimilated and unassimilated spellings shows that unassimilated spellings are the more frequent in proportion to the individuality of the morphemic unit. The unassimilated spellings in word-junction and in composition reflect a tendency to isolate individual words and word elements and represent the conflict between phonetic and historical spellings observed elsewhere in Greek from archaic to Koine.[1] The infrequent unassimilated spellings within a simple word, which can hardly represent actual dissimilation in speech, were introduced by analogy with similar unassimilated spellings in final position and composition. The occasional examples of the change of ν to μ or to γ before dentals reflect the confusion arising from the use of ν to represent at times the labial and the velar nasal as well as the dental. Actual assimilation of nasals to the following consonant is supported by the occasional evidence for the complete assimilation in writing of a nasal to the following consonant. Occasional evidence for the assimilation of stops to nasals also points to a practice of assimilation.

2. Assimilation of stops.

a. The preposition ἐκ.

1) ἐκ normally appears only before a consonant and ἐξ only before a vowel, but the converse occurs rarely.[2]

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[1] Cf. Schwyzer i, 213-14; Lejeune, § 130.

[2] ἐξ is generally used only before a vowel in the class. dialects, exc. in Cyprian; ἐκ is often assimilated to γ before a voiced consonant and to χ before an aspirate in Att. and most dialects (Buck, *GD*, § 100).

a) ἐκ before a vowel:

ἐκ ἐπιστολῆν (for ἐξ ἐπιστολῆς) *PFay.* 117.5 (A.D. 108)
ἐκ ἀριθμοῦ *BGU* 2074 R ii.6 (A.D. 286/7)
ἐκ ἑ̣α̣υ̣τ̣[οῦ] *POslo* 138.8 (A.D. 323)

b) ἐξ before a consonant:

ἐξ Σεκνε̣πτυνείου *StudPal.* xx, 12.8 (2nd cent.)
ἐξ μέσῃ, ἐξ δεξιᾷ (*sic*) *SB* 4284.18,20-21 (A.D. 207)
ἐξ ν̣ό̣τ̣ου *POxy.* 1631.26 (A.D. 280)

2) ἐκ is the usual spelling before voiced as well as voiceless consonants, but during the Roman period ἐκ is frequently assimilated to ἐγ both in word-junction and in composition.

a) In word-junction.[1]

i. Before δ:

ἐγ δίκης *POxy.* 278 = *MChr.* 165.27 (A.D. 17); *PMich.* 340.63 (A.D. 45/46); *PStrassb.* 289.8 (A.D. 48); *PMerton* 14.15 (A.D. 103); *POxy.* 499.33 (A.D. 121); *PVars.* 10.15 (A.D. 156); *PHeid.* 239 ii.12 (A.D. 164); *BGU* 2045.21 (A.D. 215); *PFay.* 90.20 (A.D. 234); *PBas.* 5.12 (3rd cent.); etc.
ἐγ δέ *POxy.* 2972.26 (A.D. 72 ?); *POslo* 78.16 (A.D. 136); *PPrinc.* 176.2 (3rd cent.)
ἐγ δεξιῶν *SB* 7032 = *PMich.* 187.31 (A.D. 75); *PFay.* 91.10 (A.D. 99); *PMich.* 195.17 (A.D. 121); 196.19 (A.D. 122); *POslo* 115.2 part. rest. (2nd cent.); *CPR* 16.14 (A.D. 163); etc.
ἐγ δούλης *PLBat.* xiii, 23.7 (late 1st cent.)
ἐγ διαιρέσεως *PHamb.* 62 = *PLBat.* vi, 23.4 (A.D. 123)
ἐγ δημοσίου *PStrassb.* 218.11: *BL* v, 137 (A.D. 150)
cf. ἐγ διατάγματος *PMur.* 114.15-16 (A.D. 171 ?)

ii. Before β:

ἐγ βασι(λικῆς) *PPrinc.* 172.3 (2nd cent.)
ἐγ βορρᾶ *POxy.* 2240.50 (A.D. 211)

iii. Before γ:

ἐγ γεομετρίας *PMich.inv.* 1427.3: *TAPA* 101 (1970), 489-96 (4 B.C.); *PSI* 1072.9 (3rd cent.)
ἐγ γειτόνων *POxy.* 1675.9 (3rd cent.)

[1] In the Ptol. papp., ἐκ is reg. assimilated to ἐγ before voiced stops (rarely before γ), λ, and nasals, sporadically before voiceless consonants (Mayser i², 1, 199-200).

iv. Before λ:

ἐγ λεγεῶνος *PMich.* 551.15, sim. 30 (A.D. 103); perhaps also *PFay.* 91.11 (A.D. 99)

ἐγ λόγου *PLond.* 131 R (i, 166-88).6, etc. (A.D. 78-79); *PSI* 1078.22 (A.D. 356)

v. Before μ:

ἐγ μέν *POxy.* 2972.23 (A.D. 72 ?); *POslo* 78.15 (A.D. 136); *PPrinc.* 176.2 (3rd cent.)

ἐγ μητρός *POxy.* 728.2 (A.D. 142); *PRyl.* 416 descr. (3rd cent.); *POxy.* 1254.26 (A.D. 260); etc.

ἐγ μέρους *PPrinc.* 172.17 (2nd cent.); *PHarris* 62.9 (A.D. 151); *PFlor.* 340.14 (early 3rd cent.); *PAmh.* 67.8 (ca. A.D. 232); *PFlor.* 21.1,2 (A.D. 239); *PHarris* 48.3 (5th/6th cent.)

ἐγ μόνων *BGU* 74.11 (A.D. 167)

vi. Before ν:

ἐγ νότου *SB* 5231.3 (A.D. 11); *PFlor.* 340.12 (early 3rd cent.); *StudPal.* v, 7 = xx, 58 ii.15 (ca. A.D. 265/6); etc.

ἐγ νέων *POxy.* 500.19 (A.D. 130); *PHamb.* 19.19 (A.D. 225); etc.

vii. Elsewhere (falsely):

ἐγ Πελκεήσιος *PGen.* 56 = *PAbinn.* 37.21 (ca. A.D. 346)

b) In composition.[1]

i. Before δ:

ἐγδίκου *PMerton* 104.11 (early Rom.); sim. *POxy.* 261 = *MChr.* 346.14 (A.D. 55)

ἐγδικίας *PLBat.* xvi, 33.23 (A.D. 147 ?); sim. *PSI* 1256.8 (3rd cent.)

ἐγδιδάξῃ *SB* 10236.39 abbrev., with ἐκδ. 16 (A.D. 36); *PLBat.* xvi, 4.29 (A.D. 53); *POxy.* 275 = *WChr.* 324.32 (A.D. 66)

ἐγδεδόσθαι *PLBat.* xvi, 4.3 part. rest. (A.D. 53); *POxy.* 275 = *WChr.* 324.6-7 (A.D. 66)

ἐγδώσω *PSI* 204.16 (A.D. 140)

ἐγδοθῆναι *POxy.* 2130.25 (A.D. 267)

ἐγδημίας *PHamb.* 87.3-4 (early 2nd cent.)

ἐγδοχέων *POxy.* 1673.7-8 (2nd cent.); sim. *POxy.* 1669.2 (3rd cent.); *POslo* 183.16 (3rd cent.)

ἐγδόσιμον *PMerton* 75.16-17 (A.D. 181); *POxy.* 1548.1 abbrev. (A.D. 202/3); *PLond.* 1164 (iii, 154-67), g.5 (A.D. 212); etc.

ἐγδανισθῆναι *BGU* 98.19 (A.D. 211)

ἐγδεχόμεθα *POxy.* 1668.26 (3rd cent.)

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[1] In the Ptol. papp., ἐγ- is found reg. before β, δ, λ, and μ, before γ, and anomalously before voiceless consonants (Mayser i², 1, 201-2).

ii. Before β:

ἐγβεβλη(μένῳ) *PMich.* 123 V III.24 (A.D. 45-47); sim. *StudPal.* xxii, 184.91 (A.D. 140 ?)
ἐγβαλλόμενον (for -μενος) *POxy.* 104.17 (A.D. 96)
ἐγβήσομαι *PJand.* 26.24,34 (A.D. 98); sim. *PRossGeorg.* ii, 18.236 (A.D. 140)
ἐγβάσεως *PFay.* 91.21 (A.D. 99); sim. *SB* 7558.36 (A.D. 172/3)
ἐγβάντι *PJand.* 135.8 (after A.D. 104); sim. *PMerton* 114.6 (late 2nd cent.)
ἐγβῇ *PStrassb.* 533.13 (2nd cent.)
ἐγβαίνιν (for -έιν) *POslo* 137.17 (3rd cent.)
διεγβολῆς *Archiv* v, p. 392, #303.1 (A.D. 109); sim. *BGU* 78 = *BGU* 445.8 (A.D. 148/9)
ἐγβιβάσει *PTebt.* 398.18 (A.D. 142)
ἐγβιβάσω *PHamb.* 70.21 (A.D. 144/5+); *PGrenf.* ii, 62.12-13 (A.D. 211); *BGU* 581 = *MChr.* 354.11 (A.D. 133)

iii. Before λ:

ἐγλιπεῖν *BGU* 1118.32 (22 B.C.); *PMerton* 10.15 (A.D. 21)
ἐγλελοιπέναι *BGU* 903.12 (A.D. 169/70); *SB* 8.7 (late 2nd cent.); *PSI* 101.10 (late 2nd cent.)
ἐγλελιμμένων *PLeit.* 16.6-7 (A.D. 244-7)
ἐγλήμπτορι *PMed.* 6.1 (A.D. 26); *PLond.* 1171 V (iii, 105-7), a.7 (A.D. 42); *PHamb.* 9.3,22 abbrev. (A.D. 143-6); sim. *POxy.* 2128.7 (late 2nd cent.); *PFay.* 58.6 (A.D. 155/6); 59.3 (A.D. 178); etc.
cf. ἐκγλήμπτωρ *PMich.* 312.6 (A.D. 34)
ἔγλ(ημψις) *POxy.* 1287.1 (early 3rd cent.)
ἐγλογιστῇ *PGiss.* 10.13 (A.D. 118); sim. *PAmh.* 69 = *WChr.* 190.4 (A.D. 154); *PTebt.* 287.7, etc. (A.D. 161-9); *POxy.* 57.9-10 (3rd cent.); etc.
ἐγλόγου *BGU* 362 = *WChr.* 96 vi.9,10; xiii.11; etc. (A.D. 215); *POxy.* 1443.13 (A.D. 227 ?); *BGU* 14 ii.15 (A.D. 255); etc.
ἐγλεκ(τοί) *PFay.* 102.3, etc. (ca. A.D. 105); sim. *PLBat.* xvi, 34.1; 35.3 (A.D. 144)
ἐγλεγομένου *PMeyer* 8.12 (A.D. 151); sim. *PGen.* 51 = *PAbinn.* 19.23-24 (ca. A.D. 346)
ἐγλέξασθαι *PFlor.* 228.22 (mid 3rd cent.)
ἐγλογιζέσθωσαν *POxy.* 34 V = *MChr.* 188 i.8-9 (A.D. 127)
ἐγλάνβανε *PBas.* 18.3 (early Rom.)
ἐγλαβών *PJand.* 140.9 (A.D. 151)
ἐγλα[β]εῖν *BGU* 2127.6 (A.D. 156)
ἔγλαβε *BGU* 884 i.8 (2nd/3rd cent.)

iv. Before μ:

ἐγμετρητῶν *PWürzb.* 10 = *PSarap.* 1 bis. 6 (A.D. 130)
ἐγμετρήσ(ας) *BGU* 52.18 (A.D. 144/5); sim. *BGU* 977.2 (A.D. 160/1)

ἐγμισθοῦντος *SB* 7612 = *PMed.* 60.20 (2nd cent.)
ἐγμ[ι]σθώσοντα *POxy.* 727.19 (A.D. 154)

v. Elsewhere (falsely):

ἐγπλέξαι *SB* 7242 = *PRossGeorg.* iii, 3.3-4 (3rd cent.)

The frequent writing of γ for κ before a voiced consonant in word-junction and composition indicates that at some time there must have been actual assimilation in speech. The retention of κ in these positions can be explained on orthographic grounds as reflecting a tendency towards etymological clarity in spelling; but the presence of γ can only be explained by postulating that the sound in question was actually voiced [g] before voiced consonants at least at the time of the adoption of this orthography. Whether such actual assimilation in speech still took place during the Roman period is not clear. The widespread identification of voiceless and voiced stops suggests that the writing of γ for κ before a voiced consonant was only a relic of an older orthographic practice.

b. The loss/assimilation of γ before ν or μ.

1) γίνομαι and γινώσκω are the normal spellings in Roman papyri, but the older orthography γιγν- becomes more common in the Byzantine period.[1]

περιγιγνομένου *SB* 10751.7 (early 3rd cent.); sim. *POxy.* 913.13,23 (A.D. 442); *PLond.* 113(3) (i, 207-8).3 (6th cent.); etc.
γίγνεσθαι *SB* 7622 = *PCairIsidor.* 1.4, etc. (A.D. 297); *PBeattyPanop.* 2.126 (A.D. 300); *PNYU* 22.14-15 (A.D. 329); *PMich.* 613.5 (A.D. 415); etc.
γίγνεται *PBeattyPanop.* 1.364 (A.D. 298); *PLBat.* xi, 10.6 (6th cent.)
γιγνομένης *PJand.* 60.4-5 (3rd/4th cent.); *SB* 8246.12-13 (A.D. 335: *BL* v, 102); *POxy.* 1973.15-16 (A.D. 420); *PRein.* 105.9 (A.D. 432); *POxy.* 1130.23 (A.D. 484); *POxy.* 914.15 (A.D. 486); *POxy.* 2237. 17-18 (A.D. 498); *PCairMasp.* 169.16 (6th cent.); *SB* 4503.23 (A.D. 606); etc.

ἐπιγιγνώσκοντος *PLond.* 233 = *PAbinn.* 58.9-10 (A.D. 345)
γιγνώσκιν *PGen.* 62 = *PAbinn.* 16.4-5 part. rest. (ca. A.D. 346); *POxy.* 1683.8 part. rest. (late 4th cent.)
γειγνώσκων *PLond.* 234 = *PAbinn.* 3.16 (ca. A.D. 346)
γιγνώσκοντες, etc. *PLips.* 64 = *WChr.* 281.5, etc. (A.D. 368/9)
γίγνωσκε *POslo* 88.12 (late 4th cent.)
ἀναγιγνωσκέτω *SB* 6000 V.7 (6th cent.)

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[1] Under the dissimilatory influence of init. γ of the pres. redupl., γν prob. assimilated from [gn] to [ŋn] and then in Cret. to [nn] (γινν‑), in Att. and most other dialects to simple [n] with compensative lengthening of the preceding vowel (γῑν‑). γίνομαι is found already in 5th cent. B.C. Ion., 4th cent. B.C. Delph., and in Att. inscrr. from 300 B.C. on; γινώσκω is found in Lesb. and Ion. prose writers and in some Dor. inscrr. (Schwyzer i, 215; Lejeune, § 61; Buck, *GD* § 86.10; *MS*, 75). In the Ptol. papp., γιγν- appears only in class. fragments (Mayser i², 1, 156).

2) -γμ- is sometimes assimilated to -μμ- or reduced to -μ-. In this cluster, γ apparently represented the velar nasal [ŋ].[1]

ἀπραμμόνας (for ἀπραγμόνως) *POxy.* 71 i = *MChr.* 62.12 (A.D. 303)
πρᾶμμα *PThead.* 21.15 (A.D. 308)
πραμμάτων, πράμματα *PCairMasp.* 151.37,39, with πραγμάτων 72, etc. (A.D. 570)

πραματικῶν *PGrenf.* i, 48 = *WChr.* 416.12-13 (A.D. 191); sim. *PAberd.* 65.7 (A.D. 208/9)
βεβρεμένην (for βεβρεγμένην) *PBerlZill.* 10.4-5 (1st/2nd cent.)
προστάματος, διατεταμένα (for προστάγματος, διατεταγμένα) *Archiv* v, pp. 383-4, #73.1,4 (early 2nd cent.?)
ἐχ[ρ]ήματος (for ἐκρήγματος) *PPetaus* 18.25 (A.D. 185)
ζεύματι (for ζεύγματι) *POxy.* 2732.13 (6th cent.?)

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[1] Cf. Schwyzer i, 214-15; Lejeune, § 61; demotic MGr. has πρᾶμα, βρεμένος, etc. (Jannaris, § 179; Mirambel, *Gram.*, 31; Thumb, *Handbook*, § 24). See further R.L. Ward, "Afterthoughts on *g* as *ŋ* in Latin and Greek," *Language* 20 (1944), 73-77; Allen, *Vox Graeca*, 33-36; Lupaş, *Phonologie*, 20-22.

SUMMARY OF CONSONANTS

The above evidence indicates the following basic phonemic structure of consonants in the language of the papyri of the Roman and Byzantine periods, with their ordinary representations in writing, alternative representations through bilingual interference, and allophones in specific conditions.

Phoneme	*Ordinary Representation*	*Alternative Representation*	*Allophones and Conditions*	
/p/	π	β φ	[b]	after a nasal? (p. 83)
			[p]	elsewhere
/t/	τ	δ ϑ	[d]	after a nasal? (pp. 81-82, 85)
			[t]	elsewhere
/k/	κ	γ χ	[g]	after a nasal? (pp. 78-79, 85); before a voiced consonant? (pp. 173-6)
			[k]	elsewhere
/β/	β	(ο)υ	[b]	after a nasal? (p. 70)
			[β]	elsewhere
/d/	δ	—	[ð]	before /j/ 1st-3rd cent.; elsewhere from 4th cent. (pp. 75-76)
			[d]	elsewhere 1st-3rd cent.
/g/	γ	—	[γ]	before back/rounded vowels/ρ? (pp. 74-75)
			[g]	elsewhere
/j/	ι	γ	[j]	before front vowel (pp. 71-72); for Lat./Eg. /j/ (pp. 72-73)
/ph/	φ	—	[p]	after σ, before another aspirate, before/after liquid/nasal (pp. 86-90)
			[f]	in transcription of Lat. *f*? (pp. 99-100)
			[ph]	elsewhere
/th/	ϑ	—	[t]	after σ, before/after liquid/nasal (pp. 86-90)
			[th]	elsewhere
/kh/	χ	—	[k]	after σ, before/another aspirate, before/after liquid/nasal (pp. 86-90)
			[kh]	elsewhere
/l/	λ	ρ	[l]	
/r/	ρ	λ	[r]	
/m/	μ ν	—	[m]	
/n/	ν γ	—	[ŋ]	before velar stops and nasals (pp. 168, 172, 176-7)
			[n]	elsewhere
/s/	σ ς	ζ	[s]	
/z/	ζ	σ	[z]	
/h/	—	—	[h]	

The above phonemic structure of consonants in the papyri may be compared with those of classical Attic Greek, Modern Greek, and Coptic, which appear below. Those for classical Attic are derived from Schwyzer, Lejeune, Sturtevant, and Lupaş; those for Modern Greek from Mirambel, *Gram.*, Thumb, *Handbook*, Pring, Householder, Romeo, etc.; those for Coptic from Worrell, Czermak, and Vergote, *Phonétique*, *Gram.*

Classical Attic Greek			*Modern Greek*			*Coptic*		
/p/	π	[p]	/p/	π	[p]	/p/	ⲡ	[p]
/t/	τ	[t]	/t/	τ	[t]	/t/	ⲧ	[d] after a nasal? [t] elsewhere
/k/	κ	[k]	/k/	κ	[k]	/k/	ⲕ	[g] after a nasal? [k] elsewhere
						/tʲ/	ϫ	[tʃ]
/b/	β	[b]	/b/	μπ	[b]	/kʲ/	ϭ	[kj] SFAA$_2$ [tʃh] B
			/v/	β	[v]	/β/	ⲃ	[β]
/d/	δ	[d]	/d/	ντ	[d]			
			/ð/	δ	[ð]	/f/	ϥ	[f] (or [φ] ?)
/g/	γ	[g]	/g/	γκ	[g]	/j/	(ⲉ)ⲓ	[j]
			/j/	γι	[j]			
			/γ/	γ	[γ]	/w/	ⲟⲩ	[w]
/ph/	φ	[ph]	/f/	φ	[f]	/ph/	ⲫ	[ph] B only
/th/	θ	[th]	/ϑ/	ϑ	[ϑ]	/th/	ⲑ	[th] B only
/kh/	χ	[kh]	/x/	χ	[x]	/kh/	ⲭ	[kh] B only
/l/	λ	[l]	/l/	λ	[l]	/l/	ⲗ ⲣ	[l]
/r/	ρ	[r]	/r/	ρ	[r]	/r/	ⲣ	[r] SBAA$_2$ only
/m/	μ	[m]	/m/	μ	[m]	/m/	ⲙ	[m]
/n/	ν γ	[n] before velars / nasals [ŋ] elsewhere	/n/	ν γ	[n] [ŋ]	/n/	ⲛ	[n]
/s/	σ ς	[z] before voiced consonants [s] elsewhere	/s/	σ ς	[s]	/s/	ⲥ	[s]
			/z/	ζ σ	[z]	/ʃ/	ϣ	[ʃ]
/h/	—	[h]				/h/	ϩ ⳉ	[h]
			/ts/	τσ	[ts]	/x/	ϧ	[x] BA only
			/dz/	τζ	[dz]	/ʔ/	—	[ʔ] SAA$_2$ only

SECTION TWO

VOWELS

VII. DIPHTHONGS

By the beginning of the Roman period, the diphthongs of classical Greek were reduced to simple vowels undifferentiated by quantity,[1] with αυ, ευ, and ηυ retaining the second element as a consonant.

A. LONG DIPHTHONGS[2]

1. Long diphthongs in -ι.

The classical long diphthongs represented by ᾱι, ηι, ωι are usually written without the -ι in the first and second centuries A.D. and normally thereafter.[3] Conversely, -ι is frequently added erroneously to simple α, η, ω, especially in the first and second centuries. These phenomena indicate that the long diphthongs /āi, ēi, ōi/ lost the second element and were reduced to their corresponding simple vowels. This elimination of the long diphthongs in -ι is paralleled throughout Koine Greek.[4]

a. Omission of -ι.

1) In final position:

ἀριστερῷ *PPrinc.* 142.2 (ca. A.D. 23); *PLBat.* vi, 2.5, sim. 8,10, with -ωι 4 (A.D. 92); *StudPal.* xxii, 42.10 (A.D. 185); etc.

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[1] For the loss of quantitative distinction, see below, p. 325.

[2] Schwyzer i, 200-3, 348-9; Lejeune, § 209-10; Buck, *GD*, § 37-39; *MS*, 36-39, 64-68; Schweizer, 59-66, 86-92; Nachmanson, 49-59, 63; Hauser, 42-48; Rüsch, 117-36, 143-4; Mayser i², 1, 95-117; Crönert, 35-52; *BDF*, § 26, 38.

[3] The -ι is generally retained longest in names and titles in introductory formulae, e.g., *POxy.* 71 i = *MChr.* 62 (A.D. 303). Other late exx. occur passim in *PHermRees* 2-6 (4th cent.). The latest exx. of -ι adscript are τιμῆι *SB* 7518.2 (4th/5th cent.); τῶι 9011 = *PMed.* 48.17 (5th/6th cent.); οἴκωι, τῶι γραμματικῶι, etc. *PCairMasp.* 77.8,13, etc.; sim. *PCairMasp.* 295 ii.5; iii.27-28 (6th cent.); ἁγιωτάτωι *BGU* 103 = *WChr.* 134.10 (6th/7th cent.).

[4] The earliest indications are found in 6th cent. B.C. Ion. (Schwyzer i, 201; Buck, *GD*, § 38). In Att. inscrr., -ι is om. sporadically from ca. 420 B.C. on and freq. from 200-100 B.C. on, with -ι added erroneously from 200 B.C. on (*MS*, 67-68). Extensive evidence for the elimination of these diphthongs is found by the 2nd cent. B.C. in Ptol. papp. (Mayser i², 1, 95-117), by the beg. of the Rom. period in Asia Minor inscrr. (Schweizer, 59-66, 86-91; Nachmanson, 49-59), and from A.D. 87 on at Dura (*PDura*, p. 47).

ἐπιστάτη *PRyl.* 125.1 (A.D. 28/29); 127.1 (A.D. 29); 128.1 (ca. A.D. 30); etc.
στρατηγῶ *PMich.* 226.1 (A.D. 37); *PMerton* 65.1 (A.D. 119); *PTebt.* 322.2 (A.D. 189); etc.
τῶ ἐνιαυτῶ *POxy.* 275 = *WChr.* 324.40 (A.D. 66)
εὕρη *POxy.* 94 = *MChr.* 344.13 (A.D. 83); *SB* 7660.26 (ca. A.D. 100); etc.
τῆ ἐνεστώση ἡμέρα *PSI* 203.3 (A.D. 87); *POxy.* 45 = *MChr.* 222.8 (A.D. 95); etc.
τῆ κυρία *PMich.* 465.1 (A.D. 107); *PTebt.* 412.1 (late 2nd cent.); *BGU* 1081.1 (2nd/3rd cent.); etc.
δόξη *PBrem.* 48.14 (A.D. 118); *PSI* 281.36 (A.D. 136/41); *PTebt.* 294 = *WChr.* 78.21 (A.D. 146); *PCornell* 14.11-12 (A.D. 180-92); etc.

2) In medial position:

θέλης *PFay.* 109.1 (early 1st cent.); *BGU* 923.7 (1st/2nd cent.); *POxy.* 119.8 (2nd/3rd cent.); etc.
ληστρικῶι τρόπωι *BGU* 1061.14 (14 B.C.); *PRyl.* 127.11; 129.7; 130.6-7 (A.D. 29-31); *PMich.* 421.5 (A.D. 41-54); etc.
ληστείας *SB* 3924.30 (A.D. 19); sim. *BGU* 372 = *WChr.* 19, ii.13 (A.D. 154)
ληστῶν *POxy.* 1408.13 (A.D. 210-14); sim. *PLips.* 37.28 (A.D. 389); *PHermRees* 48.7 (5th cent.); etc.
ζώων *POxy.* 1188.4,21 (A.D. 13); *SB* 8750.44 (A.D. 98); *PBeattyPanop.* 1.382,384 (A.D. 298); 2.241 (A.D. 300); etc.
πατρώους *PMerton* 13.11 part. rest. (A.D. 98-102); *POxy.* 483 = *MChr.* 203.24 (A.D. 108); *POxy.* 715 = *MChr.* 212.28 (A.D. 131); etc.
ῥαδίως *PGiss.* 47 = *WChr.* 326.26 (A.D. 117-38); *POxy.* 471.54 (2nd cent.); *BGU* 15 ii.18 (A.D. 197?); etc.
ῥαδιουργίας *BGU* 226 = *MChr.* 50.14 (ραδουρ-) (A.D. 99); *POxy.* 237 viii.15 (A.D. 186)
ἀποθνήσκομεν *PGiss.* 17 = *WChr.* 481.9 (ca. A.D. 117-38); sim. *PLond.* 1698.5 (mid 6th cent.); *PLond.* 1708.67 (A.D. 567?)
cf. *apothnes[cein PSI* 743.1 (1st/2nd cent.)
ᾠά *PMerton* 113.6 (2nd cent.); *PLond.* 899 (iii, 208-9).7 (2nd cent.); *POxy.* 1568.3 (A.D. 265); etc.
ᾠῶν *POxy.* 1207.10 (A.D. 175/6?); *POxy.* 936.6 (3rd cent.); *POxy.* 1339 descr. (3rd cent.); etc.
cf. ὀῶν (for ᾠῶν) *PMich.* 127 ii.53 (A.D. 45/46); *PRossGeorg.* ii, 41.16, etc. (2nd cent.); *POxy.* 83 = *WChr.* 430.8, with ὀωπώλου 4 (A.D. 327)
χρήζονται *SB* 8072 = *PPrinc.* 20.20 part. rest. (2nd cent.); sim. *PGen.* 16 = *WChr.* 354.10 (A.D. 207); *PFlor.* 138.6 (A.D. 264); etc.
ὑπερώους *POxy.* 76.19 (A.D. 179); sim. *POxy.* 1127.5 (A.D. 183); *BGU* 321 = *MChr.* 114.12; 322 = *MChr.* 124.13 (A.D. 216); *SB* 9586.17 (A.D. 600); etc.

cf. ὑπερῶια, ὑπερώιου *PDura* 19.7,11 (A.D. 88/89); but ὑπερώου *PColt* 31.35 (6th cent.)
ἀϑõος (for ἀϑῶος) *POxy.* 237 viii.17 (A.D. 186)
ἀϑῶον *PBerlZill.* 4.18 (4th cent.)

b. Addition of -ι to η and ω.[1]

1) In final position:

οὐλῆι *PSI* 1130.6,7,9 (25 B.C.); 1028.5,6,7,8 (A.D. 15); *PMerton* 10.4,5 (A.D. 21); *PMed.* 7.7,8,10 (A.D. 38); *POxy.* 99.3,4 (A.D. 55); *PRein.* 106.4 (A.D. 51/65); *PPrinc.* 31.4,6 (A.D. 79/80); etc.
ἔχωι *OMich.* 119.2 (11 B.C.); *OEdfou* 397.2; 398.2 (A.D. 4); *PMich.* 523.9 (A.D. 66); etc.
ἀξιῶι *SB* 7376.38 (A.D. 3); *PPrinc.* 23.12 (A.D. 13); *SB* 10239.19 (A.D. 37); *POxy.* 2342.37 (A.D. 102); etc.
ὁμολογῶι *PFay.* 89 = *MChr.* 166.8 (A.D. 9); *PMich.* 294.1; 295.2; 298.2; 303.1 (1st cent.); *PMich.* 197.17 (A.D. 123); *PSI* 697.2 (2nd cent.); etc.
γυνῆι *SB* 5231 (so copy 5275).14 (A.D. 11); *PMich.* 241.10 (A.D. 16); *PLond.* 141 (ii, 181-8).3 (A.D. 88); etc.
ἔτηι *POxy.* 721 = *WChr.* 369.15 part. rest. (A.D. 13/14); *PMerton* 10.7,9 (A.D. 21); *PMich.* 121 R I, i.3; viii.1 (A.D. 42); *PSI* 1124.5 (A.D. 158); etc.
ὀκτώι *WO* 3.5 (A.D. 19: *BL* ii, 2, 46); *WO* 7.6 (A.D. 26); *PMich.* 293.3 (A.D. 14-37); *PMich* 244.9 (A.D. 43); *PFay.* 47.13 (A.D. 61); *OEdfou* 31.3 (A.D. 72); *OWilb-Brk.* 55.4 (A.D. 129); etc.
μῆι *MChr.* 102.2, corr. 3 (A.D. 68); *BGU* 595.5,8,21, corr. 13 (ca. A.D. 70-80); *PLond.* 163 (ii, 182-3).28 (A.D. 88); *PLond.* 142 (ii, 203-4).12 (A.D. 95); *PLond.* 143 (ii, 204-5).18 (A.D. 97); etc.

See further *PMich.* 243 (A.D. 14-37), with -ι added to every 3rd person impt., as δότωι 5,6,7; *POxy.* 37 = *MChr.* 79 (A.D. 49), with -ι added consistently to every final η and ω whether etymologically correct or not; and *PStrassb.* 151 = *SB* 8941 (ca. A.D. 100: *BL* v, 134), with -ι added to every 1st decl. nom. sg.

2) In medial position:

ἀποδώισωι *PMed.* 6.19 (A.D. 26); *PMich.* 566.27 (A.D. 86); *PMed.* 58.16, sim. 6 (2nd cent.)
δίδωιμι *Archiv* v, pp. 382-3, #69 V.4,11 (1st/2nd cent.)
κώιμην, etc. *PRyl.* 131.14 (A.D. 31); sim. *PRyl.* 139.18 (A.D. 34); *PLBat.* iii, 13.6-7 (A.D. 156)
ἐνεσστῶιτος (for ἐνεστῶτος) *PRyl.* 131.8-9 (A.D. 31); sim. *POxy.* 2863.3 (A.D. 123)
τελευτήισωι *PMich.* 321.17 (A.D. 42)
ὑπηγώιρευσα *PMich.* 322a.38 (A.D. 46)

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[1] For the addition of -ι to α, see below, pp. 194-5.

καταστῆισαι, προσήικει, γένηιται *PSI* 1435.4-7 (1st cent.)
ἑβδώιμου, δωιδεκάτου *SB* 7032 = *PMich.* 187.1,12 (A.D. 75)
μισθωιτῇ *BGU* 348.1-2 (A.D. 156)

2. Long diphthongs in -υ.

The classical long diphthongs /āu, ēu, ōu/ represented by ᾱυ, ηυ, ωυ, all of secondary origin in Greek,[1] show different developments in the papyri.

a. ωυ.[2]

1) ωυ appears correctly only in the Egyptian month name Θωῦθ (ⲑⲟⲟⲩⲧ, B often ⲑⲱⲟⲩⲧ),[3] in Egyptian personal names, and in the Biblical name Μωυσῆς.[4] In all of these, it alternates with simple ω, sometimes also with ωου.

a) Θώθ:

Θωῦθ *POxy.* 1453.19 (30/29 B.C.); *PLond.* 1171 (iii, 177-80).32 (8 B.C.); *OTait* 1170.3 (A.D. 5); *POxy.* 731.3 (A.D. 8/9); *SB* 4251.3 (A.D. 32/33); *CPR* 14 = *StudPal.* xxii, 172.5,23 (A.D. 166); *PRein.* 52b = *SB* 9363.29 (A.D. 247/57); etc.
Θωῦτ *SB* 2078 (5 B.C.); *OTait* 1084.5 (A.D. 84); *WO* 1050.3 (A.D. 91); etc.
Θώθ passim
cf. also Θωώθ *OStrassb.* 435.1 (A.D. 213)

Note. The Egyptian month name Φαμενώθ sometimes appears erroneously as Φαμενωῦθ, e.g., *OTait* 1014.3 (A.D. 36); *PMich.* 123 R, XII.37; V, III.14; VIII.21 (A.D. 45-47); *PMich.* 122 I.25 (A.D. 49).[5]

b) Egyptian personal names:

Μεστωῦτος *PMich.* 123 R, xxi.25 (A.D. 45-47)
Πεκ̣ωῦ(τος) *SB* 3563.1 (A.D. 69); Πεκωῦς *POxy.* 2338.75 (late 3rd cent.)
Πεκῶς *PPrinc.* 10 v.30 (A.D. 34); Πεκῶτος *PPrinc.* 130.2 part. rest. (A.D. 198-203); *PBerlLeihg.* 8.24 (n.d.)
Πεκωοῦτος *POxy.* 2124.3 (A.D. 316); cf. Πεκωοῦς *SB* 32.1, inscr. (Rom.); *SB* 136.2-3, inscr. (n.d.)

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[1] The inherited IE long diphthongs were lost in prehistoric Greek. See Schwyzer i, 348-9; Buck, *GD*, § 37.

[2] ωυ occurred in class. Att. only through contraction or crasis and then rarely, e.g., πρωυδᾶν < προαυδᾶν; in Ion. it also arose most freq. through contraction, e.g., ἐμεωυτοῦ, but is also found in θωῦμα, etc. (Schwyzer i, 346; Bechtel, *Die griechischen Dialekte* iii, 144; see esp. O. Szemerényi, *Glotta* 33 [1954], 250-4).

[3] Schwyzer i, 203, Zusatz, attributes the earlier spellings Θωῦθ and Θωῦτ usu. in Ptol. papp. (Mayser i², 1, 117; Wilcken, *Gr. Ostr.*, 807-8) to the fact that Gr. no longer had a true /ōu/ diphthong to render the corresp. Copt. diphthong ⲱⲟⲩ.

[4] Μωυσῆς is the spelling in better witnesses of the LXX and NT (*BDF*, § 38).

[5] There are also two exx. of this spelling in the Ptol. papp. (Mayser i², 1, 117).

Τεϋφωῦς *POxy.* 984 descr. (A.D. 81-96?)
Ἰναρωῦτος *PLond.* 903 (iii, 116-17).2 (early 2nd cent.)
Ἰναρωοῦτος *PHamb.* 60.15 (A.D. 90); *OTaitCamb.* 87.4 (late 2nd/early 3rd cent.); *POslo* 93.2 (A.D. 212); etc.
Ἰναρῶτος *PAchmim* 9.43 (late 2nd cent.); *PAberd.* 93.6 abbrev. (2nd/3rd cent.); etc.
Πεεβωῦτο(ς) *PRyl.* 220.44 (A.D. 134-8)
Πεεβῷ̣τ̣ο̣ς *POslo* 17.3 (A.D. 136)
Ἁρθωύτου *OTait* 1816.3 (2nd/3rd cent.)
Ἁρθώτου *PPrinc.* 23.3 (A.D. 13); *SB* 9560.4 (A.D. 52/53); *PStrassb.* 294.12 (A.D. 150/1); *SB* 9344.4 part. rest. (2nd cent.); etc.
Πατουωῦ[τος] *StudPal.* iii, 376.4 (5th cent.)
Πατουῶς *SB* 3575.3 (n.d.); *PLond.* 387 (ii, 331-2).19 (6th/7th cent.?)
Πεσωῦ *StudPal.* x, 298 V, i.8 (7th/8th cent.)
Πεσῶτ̣ο̣[ς] *PLond.* 1422.1 (8th cent.)

c) Μωυσῆς, etc.:

Μωυσῆς *BGU* 736.9 (A.D. 544/59); *PCairMasp.* 94.24 (A.D. 553); *PErl.* 127 descr. (Byz.); etc.; cf. *SB* 7498.3, inscr. (6th/7th cent.)
Μωυσέως *PLond.* 1653.4 (4th cent.)
cf. ⲙⲱⲩⲥⲏⲥ *PLond.* 1589.10 (A.D. 705-7)
Μουσῆς *OTait* 1945.8 (3rd/4th cent.); *OMich.* 588 i.2 (late 3rd/early 4th cent.); 170.4 (early 4th cent.); *OFay.* 43.2 (early 4th cent.); *PLond.* 1419.159, etc. (A.D. 716+)
Μουσῇ *PLond.* 1350.5 (A.D. 710)
cf. ⲙⲟⲩⲥⲏⲥ *PLond.* 1550.9; 1587.19 (8th cent.)
Μωσῆς *StudPal.* x, 182.5 (8th cent.)
cf. ⲙⲱⲥⲏⲥ *PLond.* 1645.4 (8th cent.)

2) ωυ appears sporadically in Greek words for ου:

ἀπηλιώ]τωυ, τωῦ κυρίου (for -του, τοῦ) *SB* 8950 = *PSI* 1320.21,22 (A.D. 82-96)
τωῦ (for τοῦ) *SB* 4483.19 (7th cent.)
ωὐλ(ή) (for οὐλή) *BGU* 856 = *MChr.* 331.23 (A.D. 106)
μωυ (for μου) *PCairIsidor.* 104.28 (A.D. 296)

b. ᾱυ is frequently written without the -υ:

ἐματόν *PGrenf.* i, 45-46 = *WChr.* 200 A.7; B.5 (19 & 18 B.C.); *POxy.* 2983.24 (2nd/3rd cent.); *POxy.* 2893 ii.8 part. rest. (A.D. 269); etc.
ἐματῆς *SB* 5661.7, with ἐματήν 17 (A.D. 34); *PLond.* 1168 (iii, 135-8).14,26 (A.D. 44: *BL* i, 282); *BGU* 827.8 (n.d.)
ἐματήν *POxy.* 281 = *MChr.* 66.13 (A.D. 20-50); *BGU* 1675.3 (prob. 2nd cent.); ματήν *PLond.* 240 = *PAbinn.* 51.12 (A.D. 346); ματῇ *BGU* 948.19 (4th/5th cent.?); etc.

ἐματῷ *POslo* 58.4, with ἑαυτόν 8 (3rd/4th cent.); *POxy.* 1683.22, sim. 24 (late 4th cent.)
ἐματοῦ *PLond.* 238 = *PAbinn.* 50.19, with ἑαυτοῦ 11 (A.D. 346); *PLips.* 52.9 (A.D. 372)
σεατοῦ *POslo* 47.14-15: *BL* iii, 122 (A.D. 1); *PMich.* 123 R, XI.24 (A.D. 45-47); *POslo* 150.14 (1st cent.); *POxy.* 1479.13 (late 1st cent.); etc.
σατοῦ *BGU* 1079 = *WChr.* 60.31, with σατόν 25 (A.D. 41); *PBaden* 35.27 (A.D. 87); *PFay.* 119.24 (ca. A.D. 100)
σατῷ *PMich.* 476.17 (early 2nd cent.); *BGU* 380.16 (3rd cent.)
σατόν *PHamb.* 86.6 (2nd cent.); etc.
cf. σατήν *PGM* 4.2322 (4th cent.)
ἑατῆς *BGU* 1058 = *WChr.* 170.7,28 (13 B.C.); *PMich.* 345.10, with αὐτῶν 29 (A.D. 7); *BGU* 197.5, sim. 22 (A.D. 17); *PMed.* 7.14 (A.D. 38); *PMich.* 295.1 (1st cent.); *SB* 7660.10 (ca. A.D. 100); etc.
ἑατῇ *BGU* 1106 = *MChr.* 108.10, sim. 27 (13 B.C.); *PSI* 36a.8 (A.D. 11-19); *BGU* 183 = *MChr.* 313.6 (A.D. 85)
ἑατούς *POxy.* 743.21, with [σ]εατο(ῦ) 43 (2 B.C.); *POxy.* 745.5, with σεαυτοῦ 10 (ca. A.D. 1); *PHamb.* 65.3, with ἑαυτῶν 5 (A.D. 141/2); etc.
ἑατῶν *PLond.* 445 (ii, 166-7).17 (ca. A.D. 14/15); *PRyl.* 138.8 (A.D. 34); *PRyl.* 141.17 (A.D. 37); *PJand.* 25.3, sim. 5 (6th/7th cent.)
ἑατοῦ *SB* 5954.5 (A.D. 15); *PRyl.* 126.14 (A.D. 28/29); *BGU* 183 = *MChr.* 313.3 (A.D. 85); etc.
ἑατόν *PMich.* 241.32 (A.D. 16); *PRyl.* 125.22, sim. 23 (A.D. 28/29); *PPhil.* 33.20 (prob. 1st cent.: *BL* iv, 70); *PMilVogl.* 24.30 (A.D. 117)
ἑατῶι *PMich.* 311.16 (A.D. 34); *PMich.* 121 R III, viii.2; sim. x.2 (A.D. 42); *PMich.* 305.14 (1st cent.); etc.

This omission of the -υ, attested throughout Koine Greek,[1] indicates that the original /āu/ diphthong represented by ᾱυ was reduced to a simple vowel through loss of the second element in pronunciation. This long /āu/ diphthong was not identified with the short /au/ diphthong, in which the second element shifted to a consonant, indicated in the papyri by the variant spellings αου and αυου (also αβ).[2]

c. There is little evidence for the pronunciation of ηυ in the papyri.[3] The retention of a diphthongal pronunciation may be indicated by the survival of

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[1] ἑατοῦ, etc., appear in Att. inscrr. from 74 B.C. on (*MS*, 61, 154), and are found in Asia Minor inscrr. (Schweizer, 91-92), at Delphi (Rüsch, 136), and in the Ptol. papp. (Mayser i², 1, 98-99). See further Schwyzer i, 203 w. lit.

[2] See below, pp. 230-3.

[3] The interchange of ευ and ηυ in past tenses of verbs in ευ- pertains to the loss of temporal augment and reduplication; see Morphology V B 2.

the second element as a consonant in Modern Greek, e.g., ηὖρα [ivra],[1] and by the sporadic substitution in the papyri of ηου for ηυ or ευ:[2]

ηοὐχρήστησεν (for ηὐ- or εὐχρήστησεν) *POxy.* 1473.26 (A.D. 201)
κουρηού(ς) (for κουρεύς) *BGU* 344 i.24: *BL* iii, 11 (2nd/3rd cent.)
cf. Ταορσηοῦς (for Ταορσεῦς) *PMich.* 351.34 (3rd hand), with Ταορσεῦς 3, etc. (1st hand) (A.D. 44); sim. 321.8 (A.D. 42); etc.

B. SHORT DIPHTHONGS

1. ει.[3]

There is a very frequent interchange of ει and ι (whether long or short etymologically) in all phonetic environments throughout the Roman and Byzantine periods. This indicates the identification of the classical Greek /ei/ diphthong with the simple vowel /i/.

a. ει > ι:

ἰ (for εἰ) *SB* 7376.27 (A.D. 3); *SB* 7357 = *PMich.* 206.18: *BL* iv, 53 (2nd cent.); *PTebt.* 397 = *MChr.* 321.19 (A.D. 198); *PGissBibl.* 27.14 (3rd cent.); *POslo* 162.5 (4th cent.); *PPrinc.* 99.3 (4th cent.); etc.
ἰς (for εἰς) *PMich.* 353.8 (A.D. 48); *POxy.* 1641.13 (A.D. 68); *POxy.* 1155.4,18 (A.D. 104); *PMich.* 498.10; 499.7; 501.19, etc. (2nd cent.); *POxy.* 2182.30 (A.D. 166); *BGU* 15 i = *WChr.* 393.10 (A.D. 194); *BGU* 790.3 (A.D. 199); *PLond.* 851 (iii, 48-50).14 (A.D. 216-19); *POxy.* 1475.13, etc. (A.D. 267); etc.
ἴην (for εἴην) *POxy.* 2958.17 (A.D. 99); *PMilVogl.* 25 v.23 (A.D. 126/7)
ἰμί (for εἰμί) *POxy.* 105 = *MChr.* 303.17 (A.D. 117-37); *BGU* 55 ii.17 part. rest. (A.D. 175); *PLBat.* xiii, 19.3 (3rd cent.); etc.
ἰσίν (for εἰσίν) *PLBat.* iii, 4.12, sim. 9 (A.D. 150/1); *POxy.* 1837.4 (early 6th cent.); etc.
ἶναι (for εἶναι) *POxy.* 1475.43 (A.D. 267); *CPR* 10 = *MChr.* 145.8 (A.D. 322/3); *POxy.* 1716.26 (A.D. 333); etc.
ἴκοσι (for εἴκοσι) *CPR* 11.34 (A.D. 108); *POxy.* 1561.8 (A.D. 268)
δῖ (for δεῖ) *SB* 7404.41 = *PLBat.* vi, 24.84 (up to A.D. 124); *POxy.* 1489.8 (late 3rd cent.); etc.

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[1] See *BDF*, § 67.1, where the reg. use of the diacritical mark over ηϋ -in the NT codd. ℵA is also noted.

[2] Cf. the parallel interchange of ευ and εου below, pp. 230-2.

[3] Schwyzer i, 184, 191-4, 196, 346-8; Lejeune, § 214, 220-1; Buck, *GD*, § 16; *MS*, 35-36, 40-56; Schweizer, 74-75; Nachmanson, 24, 34-37, 40-44; Hauser, 31-32, 35-37; Rüsch, 65-75, 80-100; Mayser i², 1, 54-70; Crönert, 24-35; *BDF*, § 23-24, 27, 30.2, 38.

ἔχι (for ἔχει) *PHamb.* 9.6, etc. (A.D. 143-6); *BGU* 15 i = *WChr.* 393.8 (A.D. 194); etc.
ὑμῖς (for ὑμεῖς) *PMich.* 465.25 (A.D. 107); *POxy.* 41 = *WChr.* 45.18 (ca. A.D. 300); *POxy.* 64 = *WChr.* 475.5 (3rd/4th cent.); etc.
ἴπῃ (for εἴπῃ) *BGU* 615.11 (2nd cent.); sim. *PGissBibl.* 27.15 (3rd cent.); *PBas.* 19.5 (6th/7th cent.); etc.
χρίαν (for χρείαν) *POslo* 159.14 (3rd cent.); *StudPal.* viii, 1045.3 (6th cent.); sim. *POxy.* 1068.16 (3rd cent.); etc.

b. ῑ > ει:

τειμήν (for τιμήν) *PLond.* 262 = *MChr.* 181.5 (A.D. 11); *POxy.* 2342.9 (A.D. 102); *PLond.* 842 (iii, 141).18 (A.D. 140); *POxy.* 54 = *WChr.* 34.16 (A.D. 201); *PSI* 1251.22 (A.D. 252); 1309.16 (5th/6th cent.); etc.
νυνεί (for νυνί) *PSI* 907.10, so duplic. *PMich.* 269-71.15,16 (A.D. 42); *SB* 8952 = *PSI* 1319.13 (A.D. 76); *PLond.* 897 (iii, 206-7).2 (A.D. 84); *POxy.* 1547.23 (A.D. 119); *BGU* 762.8 (A.D. 162/3); *PSI* 1230.9 (A.D. 203); etc.
ἡμεῖν (for ἡμῖν) *POxy.* 44 = *WChr.* 275.10 (late 1st cent.); *POxy.* 46.23,27 (A.D. 100); *PMich.* 474.9 (early 2nd cent.); *PAmh.* 133 = *PSarap.* 92.10,21 (early 2nd cent.); *POxy.* 55 = *WChr.* 196.15 (A.D. 283); etc.
εἱμάτια (for ἱμάτια) *PMich.* 571.30 (A.D. 96-98 ?); *BGU* 948.12 (prob. 4th/5th cent.); sim. *BGU* 1013.14 (A.D. 41-69)
μειχρός (for μικρός) *StudPal.* xx, 67 R.11, sim. 19 (2nd/3rd cent.); sim. *BGU* 7 i.6 (ca. A.D. 247)

c. ῐ > ει:

εἱερεύς (for ἱερέως) *PMed.* 3.4, sim. 6 (A.D. 1-14); sim. *PMich.* 226.11,23 (A.D. 37); *PMich.* 301-2.5 (1st cent.); *PMich.* 514. 39 (3rd cent.); etc.
δειά (for διά) *PPrinc.* 142.4 (ca. A.D. 23); *POxy.* 2844.10 (2nd half 1st cent.); *PGissBibl.* 22.16 (3rd cent.); *PAntin.* 44.16 (late 4th/5th cent.); etc.
ὦσειν (for ὦσιν) *PMich.* 254-5.2 (A.D. 30/31); *PMich.* 303.3 (1st cent.); sim. *StudPal.* iv, p. 76.139 (A.D. 72/73); *BGU* 915.13 (1st/2nd cent.: *BL* i, 83); etc.
ἐστείν (for ἐστίν) *SB* 7032 = *PMich.* 187.6,14,29 (A.D. 75); *PSI* 1565.5 (4th cent.); etc.
μειᾶς (for μιᾶς) *PMich.* 266.11, sim. 15-16 (A.D. 38); *BGU* 1067.11 (A.D. 101/2); *BGU* 812 i.1 (2nd/3rd cent.); sim. *OMich.* 781.5-6 (A.D. 305/6 ?)
τει (for τι) *SB* 7032 = *PMich.* 187.20, sim. 25,29 (A.D. 75); *POxy.* 1757.10 (A.D. 138+); *PMich.* 428.4,5 (A.D. 154); *BGU* 814.23 (3rd cent.); *PCairIsidor.* 80.15 (A.D. 296); *POxy.* 1494.4 (early 4th cent.); etc.
εἵνα (for ἵνα) *PLond.* 897 (iii, 206-7).5, etc. (A.D. 84); *PPrinc.* 162.9 (A.D. 89/90); *PMich.* 466.13 (A.D. 107); *PPrinc.* 70.9 (2nd/3rd cent.);

PLBat. xi, 27.19 (3rd/4th cent.); *POxy.* 67 = *MChr.* 56.19 (A.D. 338); etc.

περεί (for περί) *POxy.* 2843.22 (A.D. 86); *POxy.* 504.16 (early 2nd cent.); *PMich.* 514.12 (3rd cent.); *POxy.* 121.3,13 (3rd cent.); *PSI* 289.3-4,4 (A.D. 277); *POxy.* 1494.6 (early 4th cent.); etc.

εἰμεί (for εἰμί) *PMich.* 176.10 (A.D. 91); *BGU* 1579.15 (A.D. 118/19); *BGU* 846.10 (2nd cent.); *BGU* 410.11 (A.D. 161); *POxy.* 2600.15 (3rd/4th cent.); *POxy.* 2154.14 (4th cent.); etc.

κυρείου (for κυρίου) *SB* 9314 = *PMilVogl.* 129.20 (A.D. 135); sim. *PMich.* 514.6 (3rd cent.); etc.

πίστειν (for πίστιν) *POxy.* 2474.22 (3rd cent.); *POxy.* 71 = *MChr.* 62 ii.11 (A.D. 303); *POxy.* 1134.8 (A.D. 421); etc.

This confusion of ει and ι, found already in some classical dialects,[1] is paralleled throughout Koine Greek.[2] There is no need to attribute the frequent representation of etymologically short ι by ει at this period to bilingual interference, as Mayser did for the second century B.C.[3] With the loss of quantitative distinction,[4] there was no longer any question of short or long /i/ in pronunciation, but only of an /i/ sound indifferent in length.

2. αι.[5]

There is a very frequent interchange of αι and ε in all phonetic environments from the beginning of the Roman period on, indicating the identification of the classical short diphthong /ai/ with the simple vowel /ε/. There is also an occasional interchange of αι and α.

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[1] The inherited short diphthong /ei/ had merged with the long closed /ē/ arising from contraction and compensative lengthening when the spurious diphthong ει was used to represent it in 5th cent. B.C. Attic. This /ē/ shifted to /ī/ in Arg. and Boeot. already in the 5th cent. B.C. (Schwyzer i, 192-3; Buck, *GD*, §28-29).

[2] In the Att. inscrr., spurious ει interchanges sporadically w. ι in vulgar language from 300 B.C. on, and both true and spurious ει interchange freq. w. ι exc. before vowels even in more elevated language from 100 B.C. on; from the reign of Tiberius, ει and ι also interchange before vowels (*MS*, 48-49). In Asia Minor, ει interchanges w. ῑ from the 2nd cent. B.C. on (Schweizer, 52-53; Nachmanson, 34-36), and w. ῐ from the 2nd cent. A.D. on, although ει is used as the orthographic representation of /ī/ sporadically from the 2nd cent. B.C. on and normally in the Rom. period (Schweizer, 72-74). Similar phenomena are found at Delphi (Rüsch, 65-75, 80-100) and in the Herc. papp. (Crönert, 26-34). In the Ptol. papp., the confusion of ει w. ῑ and ῐ is amply attested from the 3rd cent. B.C. on (Mayser i², 1, 60-65).

[3] i, 88, n. 1 (on the grounds that since there was no short /i/ in Eg., Gr. short /i/ would tend to be rendered by a vowel of the /e/ quality); see further Thumb, *Hell.*, 138. ı and eı interchange very freq. in Coptic, both in inherited Eg. words and in Gr. loanwords (Kahle, VIII, § 40, 40A; Wessely, *Lehnwörter*, 56-57; Böhlig, 94-96).

[4] See below, p. 325.

[5] Schwyzer i, 194-6, 346-8; Lejeune, §216; Buck, *GD*, § 26-27, 31; *MS*, 30-35; Schweizer, 77-79; Nachmanson, 37-40; Hauser, 34-35; Rüsch, 76-80; Mayser i², 1, 83-87; Crönert, 24; *BDF*, § 25, 30.1, 41.1; Psaltes, 117-18.

a. Interchange of αι and ε.

This is the most frequent interchange in the papyri next to the interchange of ει and ι.

1) αι > ε:

κέ (for καί) *PTebt.* 408.5 (A.D. 3); *PSI* 199.23 (A.D. 203); *POxy.* 121.19 (3rd cent.); *SB* 9194.3, etc. (late 3rd cent.); *PMich.* 518.5 (1st half 4th cent.); *SB* 9845 = *PMed.* 46.5 (6th/7th cent.); etc.

ἐτίαν (for αἰτίαν) *PMich.* 312.32 (A.D. 34); sim. *POxy.* 67 = *MChr.* 56. 9,10 (A.D. 338); *SB* 4503.35 (A.D. 606); etc.

ἐλέου (for ἐλαίου) κοτύλας ἕξ! *PMich.* 322a.32, with ἐλεουργ<ε>ῖν 9 (A.D. 46); sim. *BGU* 86 = *MChr.* 306.37 (A.D. 155); *PLond.* 929 (iii, 40-43).2,3, etc. (2nd/3rd cent.); *SB* 4317.15 (ca. A.D. 200); *OTheb.* 132.7 (3rd cent.); *POxy.* 1517.6 (A.D. 272/8); *PHermRees* 23.2 (4th cent.); *PJand.* 103.6 (6th cent.); *StudPal.* viii, 889.3; 890-1; 894-6 (Byz.); etc.

ἐλεῶν (for ἐλαιῶν) *SB* 7356 = *PMich.* 203.5,27 (A.D. 98-117); *PMich.* 205.8 (2nd cent.); *PLond.* 190 (ii, 253-5).38,39 (2nd cent.: *BL* iii, 92); *SB* 7247 = *PMich.* 214.22 (A.D. 296); *PStrassb.* 518.6 (ca. A.D. 300); etc.

ἐλεών (for ἐλαιών) *PMarmarica* iii.36 (A.D. 190/1 ?); sim. *SB* 5126 = *StudPal.* xx, 70.7, etc. (A.D. 261); etc.

ἑ͂ς (for αἷς) *PMich.* 276.35 (A.D. 47); *POslo* 133.4 (2nd cent.)

ἑροῦν (for αἱροῦν) *SB* 9265 = *PMilVogl.* 53.15 (A.D. 152/3); *PGen.* 11 = *PAbinn.* 62.6-7, sim. 12 (A.D. 350)

χέρειν (for χαίρειν) *PLond.* 335 = *WChr.* 323.7 (A.D. 166/7 or 198/9); *POxy.* 2729.2 (4th cent.); sim. *PMich.* 518.2,4 (1st half 4th cent.)

σπουδε͂ον (for σπουδαῖον) *PMich.* 211.7-8 (2nd/3rd cent.); *POxy.* 929.3 part. rest. (late 2nd/3rd cent.); *POxy.* 1218.4-5 (3rd cent.); *PLond.* 413 = *PAbinn.* 6.5-6 (ca. A.D. 346)

σπουδέως *PLBat.* xi, 26.20-21 (3rd cent.)

ἀναγκέως (for ἀναγκαίως) *PMich.* 209.14-15 (late 2nd/early 3rd cent.); sim. *StudPal.* iii, 367.2 (5th cent.)

ἑ (for αἱ) *PSI* 917.1 (1st cent.); *PTebt.* 339.9 (A.D. 220: *BL* iii, 242); *PCairIsidor.* 62.5 (A.D. 296); *PCornell* 20.59 (A.D. 302); *POxy.* 1298.8 (4th cent.); *POxy.* 1874.13,16 (6th cent.); etc.

τε͂ς (for ταῖς) *PLond.* 1164 (iii, 154-67) g.18 (A.D. 212); *BGU* 1049.9 (A.D. 342); *PCairGoodsp.* 15.8 (A.D. 362); etc.

cf. also in Latin names and loanwords:

Κεσαρήου (for Καισαρείου) *PMich.* 276.36 (A.D. 47); sim. *BGU* 9 = *WChr.* 293 i.10 (late 3rd cent.)

Κέσαρος *PMich.* 224.2275 (A.D. 172-3); *BGU* 838.7, with Τιβαιρίου for Τιβερίου 5 (A.D. 578)

πρεπόσιτον *praepositus* *POxy.* 43 R.23, etc. (A.D. 295); sim. *PThead.* 52.1 (4th cent.); *POxy.* 2232.3 (A.D. 316); *OTait* 2098.5-6; 2099.4; 2111.3 (4th/5th cent.); etc.

2) ε > αι:

μαι (for με) *PMich.* 250.1 (A.D. 18); 263.40 (A.D. 35/36); 121 R III, vii.2 (A.D. 42); 276.30 (A.D. 47); *POxy.* 1280.6 (4th cent.); etc.

ἐμαί (for ἐμέ) *POxy.* 69.15 (A.D. 190); sim. *POxy.* 1215.2 (2nd/3rd cent.); etc.

αἰγώ (for ἐγώ) *POxy.* 1216.3 (2nd/3rd cent.); *BGU* 380.12 (3rd cent.)

σαι (for σε) *PMich.* 226.39 (A.D. 37); 228.26 (A.D. 47); 201.3,17 (A.D. 99); *POxy.* 1296.20 (3rd cent.); *POxy.* 41 = *WChr.* 45.8 (ca. A.D. 300); *BGU* 21 i.6 (A.D. 340); *PLond.* 1244 (iii, 244).7 (4th cent.); etc.

αἱαυτῆς (for ἑαυτῆς) *PMich.* 264-5.21,28 (A.D. 37); *PFlor.* 50.62 (A.D. 268); sim. *POxy.* 1473.9 (A.D. 201); *POxy.* 1415.1 (late 3rd cent.); *POxy.* 120 R.5,9 (4th cent.); etc.

αἰάν (for ἐάν) *PMich.* 263.28 (A.D. 35/36); *PMich.* 297.3 (1st cent.); *BGU* 530.11 (1st cent.); *POxy.* 1583.8 (2nd cent.); *PSAAthen.* 69.5 (5th cent.)

πένται (for πέντε) *PMich.* 309 introd. 2 (1st cent.); *PLond.* 180 (ii, 94-95).3 (A.D. 228); *OMich.* 865.3 (late 3rd/early 4th cent.); *PThead.* 17.6,9 (A.D. 332); *PLond.* 1790.7 (5th/6th cent.); *POxy.* 142.6 (A.D. 534); *StudPal.* iii, 302 = xx, 215.3 (6th cent.); etc.

πεπρακαίναι (for -κέναι) *PMich.* 300.1 (1st cent.); sim. *PStrassb.* 238.9 (A.D. 177/8); etc.

παιρεί (for περί) *PMich.* 354.25-26 (A.D. 52); sim. *BGU* 1018.6 (3rd cent.); *CPR* 10 = *MChr.* 145.6 (A.D. 322/3)

ὑπαίρ (for ὑπέρ) *BGU* 13 = *MChr.* 265.21-22 twice (A.D. 289)

αἴχω (for ἔχω) *PJand.* 117.3 (3rd cent.); sim. *POxy.* 2771.5,8,9 (A.D. 323); *POxy.* 120 R.8,19,25 (4th cent.); etc.

αἴκαστον, αἰλαιήσῃ, αἰκείνου (for ἕκαστον, ἐλεήσῃ, ἐκείνου), etc. *POxy.* 120 R.3,16; V.5 (4th cent.)

The elimination of the /ai/ diphthong is indicated already in some classical dialects[1] and elsewhere in the Koine, though later than in Egypt.[2] αι and ε both represent /ε/ in Modern Greek.

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[1] Cf. Boeot. η for αι w. introd. of Ion. alphabet (earlier αε for αι from 5th cent. B.C. indicated a more open pronunciation of the second element in this diphthong than in other positions), and ει for αι (= raising of /ε/ to /e/) before vowels in 3rd cent. B.C. Boeot. and in final position in Thess. (Schwyzer i, 194-6; Lejeune, § 211, 216; Buck, *GD*, § 26-27).

[2] An interchange of αι and ε is found at Delphi from the second half of the 1st cent. B.C. on (Rüsch, 76-80) and in Att. inscrr. (also of αι and η) from ca. A.D. 100 on, freq. from A.D. 150 on (*MS*, 34). It is late and rare at Pergamum (Schweizer, 77-78) and first attested from A.D. 50 at Magnesia (Nachmanson, 37). There are two exx. at Herc. (Crönert, 24). In the Ptol. papp., αι and ε interchange sporadically from the 4th cent. B.C. on, but still rarely in the 1st cent. B.C. (Mayser i², 1, 85-86). The interchange of ⲁⲓ and ⲉ is also found freq. in Gr. loanwords in Copt. (Kahle, VIII, § 16, 26; Böhlig, 92-94).

b. Interchange of αι and α.

1) αι > α.

a) In final position:

εἰδένα (for εἰδέναι) γρά[μματα *PMed.* 5.26 (A.D. 8/9); sim. *PMich.* 311.41 (A.D. 34); *PMich.* 272.11 (A.D. 45/46); *PSI* 912.12 (1st cent.); *POxy.* 84 = *WChr.* 197.12-13 (A.D. 316); etc.

κά (for καί) + vowel *PRyl.* 178.10 = *PRein.* 103.28 (A.D. 26); *PAmh.* 110.24 (A.D. 75); *PTebt.* 316 = *WChr.* 148.33, etc. (A.D. 99); *POxy.* 1470.11 (A.D. 336); *PFlor.* 30.22 (A.D. 362); *PGiss.* 54 = *WChr.* 420.19 (4th/5th cent.); etc.
+ consonant: *BGU* 987 = *MChr.* 269.17 (A.D. 18/19 or 44/45); *PMich.* 276.30 (A.D. 47); *POxy.* 1661.6 (A.D. 74); *SB* 7264.4 (2nd cent.); *PMich.* 488.6 (2nd cent.); *BGU* 991.7 (A.D. 151); *BGU* 2090.8 (A.D. 189); *PSAAthen.* 67.11 (3rd/4th cent.); etc.

μεμίσθωμα (for -μαι) παρά *SB* 7373 = *POslo* 33.2, with κά for καί + vowel 32 and Κάσαρος for Καίσαρος V.2 (A.D. 29); *OTaitPetr.* 182.2 (A.D. 64)

βιάζοντά (for -ταί) με *POxy.* 2234.19-20 (A.D. 31); sim. *POxy.* 237 vii.7 (A.D. 186); *PSI* 476.8-9 (3rd cent.)

ἐπελεύσασθα (for -σθαι) ἐπί *PMich.* 269-71.10, so duplic. *PSI* 907.8 (A.D. 42); sim. *POxy.* 2339.11 (1st cent.); etc.

b) In medial position:

ἀγιαλοῦ (for αἰγιαλοῦ) *PSI* 901.7 (A.D. 46)

ἀρτάβας (for -αις) τρισί *PMerton* 10.37-38 (A.D. 21); sim. *PBrem.* 69.5,10 (A.D. 98)

ὑγιάνειν (for ὑγιαίνειν) *POxy.* 292.11 (ca. A.D. 25); *PPrinc.* 190 descr. 4 (2nd cent.); sim. *BGU* 954 = *WChr.* 133.30, amulet (prob. 6th cent.)

χάριν (for χαίρειν) *PMich.* 338.3 (A.D. 45); *OStrassb.* 272.2 (1st cent.); sim. *PHamb.* 66.1 (late 2nd cent.); *PIFAO* ii, 48a.1 (3rd/early 4th cent.); etc.

διαρέσεως (for διαιρέσεως) *SB* 7032 = *PMich.* 187.9 (A.D. 75)

ἁρῆι (for αἱρῆι) *PSI* 1099.15 (6/5 B.C.); sim. *SB* 9507 = *PMed.* 77.4,8 (3rd cent.)

δικάοις (for δικαίοις) *BGU* 1049.10, with τἐς for ταῖς 9 (A.D. 342)

2) α > αι.

a) In final position:

κατὰι (for κατὰ) Αἰγυπτίας *PMich.* 250.2-3 (A.D. 18); 293.2 (A.D. 14-37); 299.2 (1st cent.); 301-2.2 (1st cent.)

ἀλλὰι (for ἀλλὰ) καί *PMich.* 497.8 (2nd cent.)

ἔργα πάνται (for πάντα) ἐπιτελέσω *BGU* 39.18-19 (A.D. 186)

[λ]ηκύτια μεγάλαι (for ληκύθια μεγάλα) *SB* 1160.10, sim. with -ι added to neut. pl. 4,7,10,12 (n.d.)

b) In medial position:

καιτά (for κατά) *POxy.* 1453.27 (30/29 B.C.); *PTebt.* 370.17 (2nd/early 3rd cent.); *PLond.* 1164 (iii, 154-67) h.28 (A.D. 212); *BGU* 620 = *WChr.* 186.5 (A.D. 285-90: *BL* iv, 5); *PCairMasp.* 151-2.128,174 (A.D. 570); etc.

καιθώς (for καθώς) *PMich.* 252.9, so duplic. *PSI* 905.17 (A.D. 26/27); *PMich.* 311.39 (A.D. 34); 272.10 (A.D. 45/46); 288-9.2, also corr. 2 (1st cent.)

ἐννεακαιδεκαίτου (for -δεκάτου) *PMich.* 258.10,11 (A.D. 32/33)

παιλε[ῶν] (for παλαιῶν) *PMich.* 351.27-28 (A.D. 44); sim. *POxy.* 1988.31 (A.D. 587)

δαπαίναι (for δαπάναι) *PLBat.* vi, 19.27 (A.D. 118)

λαιχανόσπερμον (for λαχανο-) *BGU* 2068.8-9 (2nd cent.)

εἰκαίδι (for εἰκάδι) *BGU* 623.4 (2nd/3rd cent.)

νυκτὸς καὶ ἡμέραις (for ἡμέρας) *PHermRees* 9.15-16 (4th cent.); *PLond.* 1244 (iii, 244).3 (4th cent.)

αἰσπάζομεν (for ἀσπαζόμεθα) *PHarris* 158.1 (5th/6th cent.)

μῆναις (for μῆνας) *PLond.* 1390 = *PRossGeorg.*iv, 9.4 (8th cent.)

This interchange of αι and α is not connected with the occasional writing of simple α for αι before vowels when αι still represented the diphthong /ai/.[1] In the papyri, αι is written α before consonants as well as before vowels, and sometimes in the same conditions and words in which it is replaced by ε. Many examples may be the result of scribal error. The converse writing of αι for etymologically long or short α no longer distinguished by quantity[2] is parallel to the addition of -ι adscript to medial and final η and ω.[3]

Note. The late Attic by-forms ἀεί and ἀετός are normal in the papyri, but ἐλαία, καίω, and κλαίω are the predominant spellings.

1. ἀεί is the normal spelling throughout the Roman and Byzantine periods, including in compounds; αἰεί is rare.[4]

ἀεί *PLond.* 354 (ii, 163-5).4,6 (ca. 10 B.C.); *PMich.* 586.14 (ca. A.D. 30); *PAmh.* 68 = *WChr.* 374.23 (A.D. 81-96); *POxy.* 719.13 (A.D. 193);

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[1] This was common in Att. inscrr. until 300 B.C. (*MS*, 30-33; cf. Schwyzer i, 195). Relics of this older orthography are preserved in certain by-forms at Pergamum (Schweizer, 78-79). There are a few exx. of κά for καί also before consonants at Delphi (Rüsch, 80, Anm. 2). In the Ptol. papp., the interchange of αι and α is found as freq. and in similar positions as in the Rom. and Byz. papp. (Mayser i², 1, 83-85).

[2] For the loss of quantitative distinction, see below, p. 325.

[3] See above, pp. 185-6.

[4] ἀεί occurs in Att. inscrr. from 426 B.C. on, excl. after 361 (*MS*, 31 [fn. 159], 33) and is the only spelling at Delphi (Rüsch, 77), Pergamum (Schweizer, 78-79), and Magnesia (Nachmanson, 38-39), and is usual in the Ptol. papp. (Mayser i², 1, 84). In the mag. papp., αἰεί occurs only in *PGM* 4.1212 (4th cent.); elsewh. ἀεί is used.

BGU 287 = *WChr.* 124.6 (A.D. 250); *PLond.* 1928.3 (mid 4th cent.); *POxy.* 2156.6 (late 4th/5th cent.); *PCairMasp.* 158.27 (A.D. 568); etc.
ἀί (for ἀεί) *SB* 4439.7; 4444.4; 4445.6; 4451.6 (A.D. 250)
εἰσαί *POxy.* 2187.24 (A.D. 304); εἰσαεί *POxy.* 67 = *MChr.* 56.22 (A.D. 338); sim. *PLond.* 412 = *PAbinn.* 55.16 (A.D. 351)
ἀειζώου *BGU* 124.8 (A.D. 187/8); *PRossGeorg.* v, 15 i.2; ii.2 (A.D. 209 ?); sim. *WChr.* 125.7 (A.D. 250); etc.
ἀείμνηστος *PLond.* 244 = *PAbinn.* 22.8 (A.D. 346); sim. *PLond.* 1658.1,9 (4th cent.); *PLips.* 34.21; 35.22 (ca. A.D. 375); *PCairMasp.* 20 R.7; 69.7 (6th cent.); etc.
ἀειπάρθενος *PLips.* 60.2 (4th cent.); sim. *PLips.* 43 = *MChr.* 98.4 (4th cent.); *CPR* 30 = *MChr.* 290, i.3 (6th cent.); *StudPal.* xx, 243.16 (7th cent.); *PRossGeorg.* iii, 52.3; 53.3 (A.D. 674/5); *PGrenf.* ii, 100.3 (A.D. 683); etc.; cf. *PColt* 46.1 (A.D. 605); 89.44 (late 6th/early 7th cent.)
ἀίτιμον (for ἀείτιμον) *OStrassb.* 809.2 (6th cent.)

but ἀενάου *PCairMasp.* 2 i.2 (A.D. 567: *BL* i, 100); 5.25; 20 R.8 (6th cent.); 151-2.193 (A.D. 570); *PLond.* 1677.40 (A.D. 566/7); sim. ἀενάως *PLond.* 1349 = *WChr.* 284.33 (A.D. 710); etc.
αἰεί *SB* 3924.34 (A.D. 19); *PBaden* 36 i = *PSarap.* 85.5 (early 2nd cent.); *POxy.* 503.20 (A.D. 118); *POxy.* 506 = *MChr.* 248.23 (A.D. 143); *PRossGeorg.* ii, 23.2 (A.D. 156); *PAmh.* 90.17 (A.D. 159)
αἰέν *SB* 10463.1 (6th/7th cent.)

2. ἀετός is the only spelling attested:[1]

ἀετῷ *POxy.* 105 = *MChr.* 303.16 (A.D. 117-37)

3. ἐλαία is the usual spelling, but ἐλάα or ἐλᾶ is sometimes found, including in compounds.[2]

ἐλαία *PStrassb.* 120.5 (1st cent.); *PBaden* 42.12 (2nd cent.); *PBon.* 45.8 (3rd cent.); etc.
[ἐ]λέας *PRossGeorg.* ii, 18.145 (A.D. 140); sim. *BGU* 900.26 (Byz.); etc.
ἐλᾶν *PRyl.* 130.11 (A.D. 31); *PRyl.* 231.4 (A.D. 40); *SB* 7374 = *POslo* 21.13 (A.D. 71); *PFay.* 117.9, with ἐλᾶς 7 (A.D. 108)
ἐλᾶς *PMich.* 127 i.19 (A.D. 45/46); *PFay.* 116.16 (A.D. 104); *PRyl.* 97.7 (A.D. 139); *PMich.* 488.9 (2nd cent.); *POslo* 136.12,20 (A.D. 141/2); *SB* 6951 V.57,66 (A.D. 138-61)

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[1] Only αἰετός is found in class. Att. inscrr., but [ἀ]έτωμα occurs in 298 B.C. (*MS*, 31 [fn. 160], 33); only ἀετός is found in the Ptol. papp. (Mayser i², 1, 84-85), in the mag. papp. (*PGM* 12.428 [A.D. 300-350] and 13.881 [A.D. 346]) and at Herc. (Crönert, 106; cf. n. 1, w. citations of αἰετός in codd. of X. Arist. Apollod. Ph. Luc. App. etc.).

[2] ἐλάα predominates in the Att. inscrr. (*MS*, 31 [fn. 158], 32) and at Pergamum (Schweizer, 78), but ἐλαία alone occurs once at Magnesia (Nachmanson, 39). Both spellings are found in the Ptol. papp. (Mayser i², 85).

ἐλαῶν *BGU* 2105.3 (A.D. 114); ἐλαῶσει (for -ῶσι) *PLond.* 1769.3 (6th cent.)
ἐλαουργός *PAmh.* 118.4 (A.D. 185)

4. καίω and κλαίω predominate over κάω and κλάω (see Morphology VI B 1).

3. οι.[1]

There is a frequent interchange of οι with etymologically long or short υ in various phonetic environments, indicating the identification of the classical short diphthong /oi/ with the simple vowel /y/ (see below, pp. 262-75). There is also an interchange of οι with ο in certain words.

a. Interchange of οι and υ.

This is the most frequent interchange in the papyri next to the interchanges of ει with ι and of αι with ε. It occurs unconditionally from the first century A.D. on.

1) οι > υ:

ὗς (for οἷς) *PLond.* 256 R a = *WChr.* 443.16 (A.D. 15); *SB* 7663 = *PLBat.* i, 8.17,28 (A.D. 86); *SB* 7559.20 (A.D. 118: *BL* iii, 189); *PGiss.* 22.19 (A.D. 150); *PCairIsidor.* 63.6,12 (A.D. 296+); etc.

λυπόν (for λοιπόν) *POxy.* 1480.13 (A.D. 32); *PMich.* 464.13, corr. 5 (A.D. 99); *POxy.* 511.4 (A.D. 103); 119.8,13: *BL* i, 316 (2nd/3rd cent.); 2154.12, corr. 15 (4th cent.); etc.

μυ (for μοι) *PMich.* 258.2 (A.D. 32/33); *PCornell* 49.8,10 (1st cent.); *BGU* 68.13 (A.D. 113/14); 155.6 (A.D. 153); 247.2,5 (2nd/3rd cent.); *POxy.* 1678.12, etc., with συ for σοι 12, etc. (3rd cent.)

ὑ (for οἱ) *PFay.* 25.3 (A.D. 36); *PMich.* 226.45 (A.D. 37); *PSI* 917.1,11, so duplic. *PMich.* 282.1,8 (1st cent.); *PSAAthen.* 23.26 (A.D. 82); *POxy.* 2960.30,45 (A.D. 100); *PLBat.* vi, 15.59 (ca. A.D. 114); *CPR* 198.15 (A.D. 139); *BGU* 842 iii.19 (A.D. 187); *SB* 7992 = *PSI* 1332.30 (2nd/3rd cent.); *PLond.* 1232 (iii, 56-57).10, etc. four times (A.D. 210); *POslo* 111.138, corr. 140 (A.D. 235); *SB* 8006.13 (3rd cent. ?); *StudPal.* viii, 852.1 (6th cent.); etc.

τυαύτην (for τοιαύτην) *PMich.* 264-5.9 (A.D. 37); *BGU* 584.4 (A.D. 44); sim. *SB* 8030 = *PMich.* 245.28, corr. 25 (A.D. 47); *PRossGeorg.* ii, 15.30 (A.D. 98-102); *BGU* 416.7 (A.D. 150); 100.5 (A.D. 159); *POxy.* 41 = *WChr.* 45.7,15-16 (ca. A.D. 300); etc.

κυνῇ (for κοινῇ) *PMich.* 244.4, etc. (A.D. 43); sim. *PMich.* 123 R I d.3 (A.D. 45-47); *POxy.* 46.20 (A.D. 100); *POxy.* 2855.1 (A.D. 291); *OMich.* 529.3 (A.D. 312); etc.

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[1] Schwyzer i, 194-6, 346-8; Lejeune, § 216-17; Buck, *GD*, § 30-31; *MS*, 56-59; Schweizer, 80-82; Nachmanson, 44-46; Hauser, 37-38; Rüsch, 100-14; Mayser i², 1, 87-91; Crönert, 116-23.

παντῦα (for παντοῖα) *PMich.* 322a.21 (A.D. 46); sim. *SB* 9603 a.19; c.17 (A.D. 372); *PBeattyPanop.* 1.233 (A.D. 298); etc.
τῦς (for τοῖς) *PMich.* 276.31 (A.D. 47); 310.15,17 (1st cent.); *PFouad* 19.6 (A.D. 53); *SB* 7031 = *PMich.* 186.35 (A.D. 72); *PMich.* 584.38 (A.D. 84); *PMich.* 224.6332, etc. (A.D. 172/3); *StudPal.* iii, 233.2 (6th cent.); etc.
ἀνύξει (for ἀνοίξει) *PMich.* 305.14 (1st cent.); sim. *PMich.* 475.16 (early 2nd cent.); *BGU* 1655.60 (A.D. 169); *POxy.* 2348.51 (A.D. 224); *PStrassb.* 296 R.12; V.8 (A.D. 326); etc.

See further the change of every οι to υ in *POxy.* 528 (2nd cent.); *PMich.* 510 (2nd/3rd cent.); *PLond.* 244 = *PAbinn.* 22 (A.D. 346); etc.

2) ῡ > οι:

ποιρόν (for πυρόν) *POxy.* 2353.13 (A.D. 32); sim. *PRyl.* 131.19 (A.D. 31); *BGU* 538.32 (A.D. 100); *PFouad* 55.6,7 (A.D. 128); *POxy.* 2588.8 (A.D. 148); *BGU* 1018.14 (3rd cent.); *BGU* 586.13 (A.D. 302: *BL* i, 54); etc.
κοιρίου (for κυρίου) *PMich.* 351.34 (A.D. 44); *PBrem.* 58.8-9 (ca. A.D. 117); etc.
ἄκοιρον (for ἄκυρον) *PSI* 961.55 (A.D. 176/8)
οἱμῶν (for ὑμῶν) *PGrenf.* i, 48 = *WChr.* 416.9, corr. 11,16 (A.D. 191); sim. *SB* 9574.6 (2nd cent.); *PVindobWorp* 24.9 (3rd/4th cent. ?); *StudPal.* xx, 292.12 (6th cent.); etc.
cf. Παοῖνι (for Παῦνι[1]) *BGU* 530.42 (1st cent.); *PMed.* 11.25 (A.D. 52/56); *PMich.* 567.18 (A.D. 91); *PSarap.* 65 ii.2 (ca. A.D. 125); *PMilVogl.* 213 ii V.6, etc. (A.D. 154); *OWilb-Brk.* 12.7 (late 2nd cent.); *OMich.* 276.1,5 (1st half 3rd cent.); sim. *PSI* 1338.17 (A.D. 299); *PMerton* 94.2 (5th cent.); etc.

3) ῠ > οι:

οἱποδωχίοις (for ὑποδοχείοις) *PMich.* 310.9 (A.D. 26/27); sim. *PMich.* 244.2,12, corr. 9,17 (A.D. 43); *CPR* 23 = *MChr.* 294.18,19 (prob. A.D. 138-61); *PSI* 1082.9 (4th cent. ?); *SB* 5273 = *StudPal.* xx, 128.16,19 (A.D. 487); etc.
προσβοίτεροι (for πρεσβύτεροι) *PMich.* 313.8 (A.D. 37); sim. *PGen.* 42.24,26 (A.D. 224); etc.
συνκοιρ(οῦντα) (for συγκυροῦντα) *PMich.* 121 R II x.1 (A.D. 42); sim. *PMich.* 332.4 (A.D. 48); *POxy.* 99.16 (A.D. 55); *CPR* 1 = *StudPal.* xx, 1.7 (A.D. 83/84); *PMarmarica* vi.33 (A.D. 190/1 ?); etc.

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[1] Cf. Copt. ⲡⲁⲱⲛⲉ, ⲡⲁⲟⲩⲛⲓ, etc. αυ does not form a diphthong in this name; cf. exx. of Παῦνι with diaeresis below, p. 206, and other variants Παόν(ι) *WO* 1131.6 (A.D. 212); Παῆνι *StudPal.* viii, 794.4 (6th cent.); etc.

σοινούσης (for συν-) *PMich.* 339.1 (A.D. 46); sim. *POslo* 37.8,21 (A.D. 295); *SB* 7247 = *PMich.* 214.1,36 (A.D. 296); *PSI* 1037.41 (A.D. 301); *PGen.* 76.17 (3rd/4th cent.); *PJand.* 128.10 (5th cent.); etc.
ἥμισοι (for ἥμισυ) *PMich.* 305.5 (1st cent.); sim. *PHamb.* 65.13 (A.D. 141/2); *PMich.* 396.13 (A.D. 186?); *POxy.* 103.10,13,17 (A.D. 316); *PNYU* 10.8; 11.a39; etc. (1st half 4th cent.); *BGU* 1082.5,9 (4th cent.); *SB* 9311.18 (A.D. 374/5); *PGrenf.* i, 54.13 (A.D. 378); *SB* 9198.4 (5th/6th cent.)
οἱγιᾶν (for ὑγιᾶ) *PMich.* 343.7 (A.D. 54-55); sim. *PMich.* 201.3 (A.D. 99); *POxy.* 1837.16 (early 6th cent.); etc.
δοίωι (for δύο) *PLBat.* vi, 6.9 (A.D. 99); sim. *SB* 9389 = *PMilVogl.* 155.23 (A.D. 111/12); *CPR* 133.3 (1st half 3rd cent.); *OMich.* 368.3 (late 3rd cent.); etc.

This identification of the sounds originally represented by οι and υ in /y/ takes place earlier in Egypt than elsewhere in Koine Greek.[1]

b. Interchange of οι and ο.

This interchange occurs in forms of ποιῶ, almost exclusively before η, and in a few other words. However, there is also extensive evidence of an interchange of οι and υ in these words. Some examples are also found in documents in which the same word is spelled correctly elsewhere.

1) οι > ο.

a) In forms of ποιῶ:

ποῶ *PMich.* 473.3 (early 2nd cent.)
ποεῖ *POxy.* 811 descr. (ca. A.D. 1)
ποεῖτε, ποήσατε *SB* 9450.4 (2nd/3rd cent.)
ποήσω *PMich.* 249.4 (A.D. 18); *PMerton* 10.43 (A.D. 21); *POxy.* 1480.26 (A.D. 32); *PMich.* 293.6 (A.D. 14-37); *PMich.* 314.4 (1st cent.); etc.
ποήσομαι *PWürzb.* 11.16 (A.D. 99); sim. *PRyl.* 97.7 (A.D. 139); *PSI* 458.17 (A.D. 155)
ἐπόησα *PMerton* 104.12 (early Rom.); sim. *PBrem.* 22.4 (ca. A.D. 117); *POxy.* 1581.8 (2nd cent.); *WO* 262.5 (A.D. 168); *PFlor.* 278 iv. 23 (mid 3rd cent.)

[1] The early phases of the reduction of /oi/ parallel those of /ai/. In Boeot., οι is often written οε in the earliest inscrr. (5th cent. B.C.) and υ by the 3rd cent. B.C., then later ει (Schwyzer i, 194-6; Lejeune, §216-17; Buck, *GD*, §30-31). Elsewh. the interchange of οι and υ is late. It is not found in the Herc. papp. (Crönert, 23), nor at Pergamum or Magnesia, but it is attested elsewh. in Asia Minor from the 2nd cent. A.D. on (Schweizer, 80; Nachmanson, 44-45). In the Att. inscrr., the first ex. of the interchange of οι and υ occurs betw. A.D. 238-44 (*MS*, 58-59). In the Ptol. papp., there are sporadic instances from the 3rd cent. B.C. on (Mayser i², 1, 89-90). For a discussion of the influence of Boeot. on the elimination of the /oi/ diphthong in the Koine, see Kretschmer, *Entst.*, 6, w. Thumb's objection, *Hell.*, 228; cf. further Debrunner, *Geschichte*, 106.

ποῆσαι *POxy.* 745.8 (ca. A.D. 1); *PRyl.* 178.6 = *PRein.* 103.24 (A.D. 26); *PIFAO* ii, 28.2 (1st cent.); *POslo* 136.8 (A.D. 141/2); sim. *PSAAthen.* 62.18 (1st/2nd cent.); etc.

ποησάσθω *PStrassb.* 203.4 abbrev. (A.D. 88/89); *PMeyer* 7.13 (A.D. 95: *BL* iii, 106); sim. *POslo* 131.26-27 (A.D. 118); *SB* 7466.12 (A.D. 147)

ποήσασθαι *SB* 7619 = *PRein.* 103.17 (A.D. 26); *PFay.* 107.8 (A.D. 133); *PSI* 883.18 (A.D. 137); *PWürzb.* 18.8 (4th cent.); etc.

ποπόηκα *PMich.* 473.6,22 (early 2nd cent.); sim. *SB* 7368.1a-2 (late 2nd/early 3rd cent.)

πεπόηται *PFouad* 28.16 (A.D. 59); cf. *PColt* 15.2 (A.D. 512)

πεποῆσθαι *SB* 6293.5 (A.D. 195/6); *PStrassb.* 42 = *WChr.* 210.18 (A.D. 310)

ἐνποήσης (for ἐμποιήσεως) *PSI* 908.11 (A.D. 42/43)

τεθηκοποημένων *BGU* 757.15 (A.D. 12)

cf. πυῶ *PBaden* 100.8 (late 1st cent.); *POxy.* 2682.4 (3rd/4th cent.); *POxy.* 2732.14 (6th cent.?)

πύει (for ποίει, impt.) *PHermRees* 17.6 (5th/6th cent.)

πυῖν (for ποιεῖν) *PPrinc.* 66.2, with μυ for μοι 5 (1st cent.); sim. *PMich.* 577.10 (A.D. 41-69)

πυήσεις *PGiss.* 97.8 (2nd cent.)

πεπύημε (for -μαι) *POxy.* 722.36 (A.D. 91/107); sim. *POxy.* 492.10 (A.D. 130)

πεπυῆσθαι *POxy.* 509.12 (late 2nd cent.)

b) In other words:

ὄκου (for οἴκου) *PMich.* 276.7 (A.D. 47); sim. *POxy.* 278 = *MChr.* 165.14,23, corr. 8,15 (A.D. 17); *PBerlLeihg.* 16 B.11 (A.D. 161); *PBouriant* 42.245, etc., corr. 217, etc. (A.D. 167); *SB* 7817 = *PSI* 1328.43 (A.D. 201); *PCairGoodsp.* 13.1, corr. 4 (A.D. 341); *POxy.* 2039.2, corr. 1, etc. (6th cent.)

cf. ὔκου (for οἴκου) *BGU* 911.11 (A.D. 18); *PMich.* 311.22,38 (A.D. 34); *BGU* 854.3 (A.D. 44/45); *PLond.* 154 (ii, 178-9).25 (A.D. 68); *PFay.* 97.30 (A.D. 78); *PLBat.* vi, 22.23 (A.D. 122); sim. *POxy.* 1761.14 (2nd/3rd cent.); *PFay.* 126.11-12 (2nd/3rd cent.); *BGU* 775.6 (3rd cent.: *BL* i, 65); *PJand.* 128.26 (5th cent.); etc.

μο (for μοι) *PSI* 902.29 (1st cent.)

ἐμό (for ἐμοί) *PMerton* 112.13 (2nd cent.)

cf. examples of μυ for μοι above, p. 197

ἐμύ (for ἐμοί) *POxy.* 487 = *MChr.* 322.17 (A.D. 156)

φόνικος (for φοίνικος) *BGU* 764.5; 765.5 (A.D. 160-7)

cf. φυνίκων *PLond.* 905 (iii, 219).4 (2nd cent.)

ὄνου (for οἴνου) *PSI* 811.7 (3rd cent.?); *OStrassb.* 463.2 (prob. 4th/5th cent.)

cf. ὕνου (for οἴνου) *BGU* 1668.2,8 (early Rom.); *SB* 4643.5; 4644.5; 4647.5 (5th/6th cent.); *POxy.* 1947.2 (early 6th cent.); etc.

ὄδα (for οἶδα) *PSI* 893.10 (A.D. 315)

cf. ὗδα (for οἶδα) *BGU* 1670.11 (1st/2nd cent.); 1675.21 (prob. 2nd cent.); *PWürzb.* 21 A.13, corr. 20 (2nd cent.); *PMich.* 211.7 (2nd/3rd cent.); *SB* 5356.15-16 (A.D. 311?); *PThead.* 24.5 (A.D. 334); *PThead.* 23 = *PAbinn.* 44.8 (A.D. 342); *PLond.* 240 = *PAbinn.* 51.5 (A.D. 346); sim. *PGot.* 31.7 (6th/7th cent.); etc.

στοχεῖ (for στοιχεῖ) *StudPal.* viii, 1051.6 (6th cent.); *PMerton* 47.7 (late 6th/7th cent.?)

cf. στυχεῖ (for στοιχεῖ) *PLBat.* xi, 15.21 (4th cent.: *BL* v, 62); sim. *StudPal.* iii, 73.7 (6th cent.); etc.

2) ο > οι:

ἔγγυοις (for ἔγγυος) *SB* 7619 = *PRein.* 103.12 (A.D. 26)

μέροις (for μέρος) *PLond.* 1168 (iii, 135-8).4 (A.D. 44: *BL* i, 282)

τοισούτων (for τοσούτων) *PMerton* 80.3 (2nd cent.); cf. τοισοῦτος *PMich.* 145 passim 10 times, math. frag. (2nd cent.)

ὁ μεμισθωμένοις (for -μένος) *POxy.* 501 = *MChr.* 349.20 (A.D. 187)

οἴνου(ς) (for ὄνους) *OMich.* 494.5 (A.D. 302?)

βοιεικοί (for βοεικοί) *POxy.* 1777.4 (late 4th cent.)

The evidence of the interchange of οι and υ in the same words, sometimes even in the same document,[1] excludes the interpretation that the interchange of οι and ο indicates the retention of the /oi/ diphthong in these words.[2] The variants in ποιῶ are inherited by-forms eventually given up.[3] In the other words, where the interchanges occur mainly before consonants,[4] scribal error or the interchange of ο and υ[5] are possible factors.

[1] E.g., ὀκία, ὐκίαν, οἰκία *PMich.* 328.2-4 (A.D. 29); ὄνου, ὕνος, οἶνον *POxy.* 1872.3-6 (late 5th/early 6th cent.). For οι > ι in these same words (πιῶ, ἶδα, ἶνον), see below, p. 272.

[2] This interpretation was proposed by Schwyzer i, 195; Mayser i², 1, 87.

[3] The loss of -ι before ε(ι) and η forms of ποιῶ (never before ο/ω) is found in Att. inscrr. already in the 6th cent. B.C., esp. freq. in the 4th cent. B.C., but rarely in Rom. times (*MS*, 57). The o-forms become increasingly freq. in epichoric inscrr. at Delphi in the 2nd and 1st cent. B.C. but virtually disappear during Rom. times (Rüsch, 110-12). Both οι-and ο- forms fluctuate at Pergamum, with the o-forms excl. before ε(ι)/η in chancery docc. influenced by Atticism (Schweizer, 80-82), but no exx. of the loss of -ι are found at Magnesia, and they are rare in Asia Minor as a whole (Nachmanson, 45-46). In the Ptol. papp., the -ι is lost before ει or η in nearly one instance out of four, and five times before ω or ου (Mayser i², 1, 87-88).

[4] Elsewh. in Gr., an interchange of οι and ο is found only before vowels, parallel to the treatment of αι and ει, as in Att. inscrr. from the 5th cent. B.C. on (*MS*, 56-58), and at Delphi from the 4th cent. B.C. to the 1st cent. A.D. (Rüsch, 100-114), but exx. before consonants are found in the Ptol. papp. (Mayser i², 1, 87-89). See further Schwyzer i, 194-6.

[5] See below, p. 293.

Note. ῥόα, *pomegranate*, is the normal spelling in the Roman and Byzantine papyri, not the late Attic ῥοιά[1] attested in *PHibeh* 121.57 (3rd cent. B.C.):

ῥόας *POxy.* 736.58 (ca. A.D. 1); *POxy.* 116.12 (2nd cent.); *SB* 9025.20,34 (2nd cent.); *PMerton* 113.3 (2nd cent.); *SB* 4485.5 (6th/7th cent.); *SB* 4483.14 (7th cent.)
ῥοῶν *POxy.* 920.13 (late 2nd/early 3rd cent.)

4. υι.[2]

υι (only prevocalic in Greek words[3]) interchanges frequently with simple υ or is expanded to υει or υιει. ϋι also interchanges occasionally with οι, or is expanded to οιι or οιει. Further, when υι is written, a diacritical mark frequently appears over the ι. These phenomena indicate that υι represented the sound /y/ accompanied by a vowel glide [j] preceding another vowel.

a. υι x υ.

1) υι > υ:

ὑύ (for υἱοί) *PMich.* 300.10, with υεἱ[ο]ῦ 12, υἱοῦ 13 (1st cent.)
ὑοί *PThead* 25.8 (A.D. 334)
ὑός (for υἱός) *SB* 7031 = *PMich.* 186.36 (A.D. 72); *POxy.* 1860.13 (6th/7th cent.); *PHermRees* 64.1 (Arab.: *BL* v, 46)
ὑῷ (for υἱῷ) *PMilVogl.* 26.1 (A.D. 127/8)
ὑοῦ (for υἱοῦ) *PYale* 64.12 (A.D. 75/76); *SB* 5607.1 (A.D. 779: *BL* v, 97)
τετελευκύης (for τετελευτηκυίης) *PMich.* 304.1, sim. 4 (A.D. 42?)
ἐδύας (for εἰδυίας) *PMich.* 274-5.12 (A.D. 46/47); sim. *PLond.* 289 (ii, 184-5).37 (A.D. 91); *BGU* 1579.28 (A.D. 118/19); *PLBat.* vi, 21.29,34 (A.D. 122); *BGU* 2020.21 (A.D. 124); *POxy.* 2134.35,47 (ca. A.D. 170)
ἡβροχηκύης (for -υίης) *PMich.* 369.11-12 (A.D. 171)
μετηλλαχύης (for -υίης) *PSI* 1227.14-15 (A.D. 188)

Note. ὑπόγυιος is read in *CPR* 220.5 (1st cent.), and ὑπογυίως in *PSI* 1103.8 (2nd/3rd cent.: *BL* iii, 228). Elsewhere in the papyri only the spelling ὑπογύως occurs: *PAmh.* 135 = *PSarap.* 96.10 (A.D. 129?); *BGU* 1572, so copy *PPhil.* 10.3 (A.D. 139); *PRyl.* 233.12 (2nd cent.); *BGU* 1210 (114).250 (mid 2nd cent.); *PStrassb.* 146 = *SB* 8261.14 (A.D. 154-8); *BGU* 731 ii.5 (A.D. 180); *POxy.* 237 vi.6; vii.32 (A.D. 186); *PMich.* 175.9-10 (A.D. 193); *PGron.* 3.15 (2nd/3rd cent.); *CPR* 20 = *StudPal.* xx, 54 i.7; ii.7 (A.D. 250).

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1 Arist. Thphr. Gal. (*LSJ*, s.v. ῥόα).
2 Schwyzer i, 199-200; Lejeune, § 212-13; Buck, *GD*, § 31; *MS*, 59-61; Schweizer, 84-86; Nachmanson, 46-49; Hauser, 38; Rüsch, 114-17; Mayser i², 1, 91-92; Crönert, 123-5; *BDF*, § 8.
3 For Κυίντος and variant spellings transcribing the Lat. *Qui-*, see below, pp. 225-6.

2) υ > υι:

υἱός (for ὑός) *OTait* 1094.2 (A.D. 21)

ἔγγυιοι (for ἔγγυοι) *PSI* 910.19 (A.D. 48); sim. *PNYU* 22.24, corr. 11,17 (A.D. 329)

ἀλληλενγυίης (for ἀλληλεγγύης) *PFouad* 51.33 (A.D. 126)

3) υι > υυ:

υὑῷ (for υἱῷ) *BGU* 33.2 (2nd/3rd cent.: *BL* i, 10)

b. υι > υει:

υείός (for υἱός) *PCornell* 22.7, etc. (early 1st cent.); *SB* 7032 = *PMich.* 187.30 (A.D. 75); *BGU* 948.16 (prob. 4th/5th cent.)

υείοῦ *PMich.* 226.16 (A.D. 37); 123 R III.17,35; IV.15, etc. (A.D. 45-47); *SB* 7663 = *PLBat.* i, 8.26 (A.D. 86); *PHamb.* 30.31 (A.D. 89); *SB* 7353 = *PMich.* 491.22 (2nd cent.); *BGU* 80 = *BGU* 446.20 (A.D. 169-77: *BL* iii, 13); cf. *SB* 360.2, inscr. (ca. A.D. 1)

υείῷ (for υἱῷ) *PMich.* 253.3, corr. 2,8 (A.D. 30); *PMich.* 332a.3, sim. 2,6, etc. (A.D. 46); *PFay.* 117.2 (A.D. 108); *PAlex.* 27.27 (2nd/3rd cent.)

υείόν *SB* 5661.11, sim. 15,16 (A.D. 34); *PMich.* 238.31, etc. (A.D. 46)

υείῶν *PSI* 918.4 (A.D. 38/39); 909.15 (A.D. 44); 901.5, so duplic. *PMich.* 332.5, etc. (A.D. 48); 913.7, so duplic. *PMich.* 298.8 (1st cent.); etc.

υείοῖς *PMich.* 321.4,7 (A.D. 42)

εἰδυεῖαι (for εἰδυῖα) *PMich.* 346a.10 (A.D. 13); sim. *PMich.* 226-356 passim (see *PMich.* v, p. 14) (1st cent.); *PLBat.* vi, 13.51 (A.D. 113/14); *PSI* 1065.24 (A.D. 157); *CPR* 154.10 (A.D. 180); *POxy.* 1645.20 (A.D. 308); *POxy.* 86 = *WChr.* 46.26 (A.D. 338); etc.

μετηλλαχυείης (for -υίης) *SB* 7573.14-15 part. rest. (A.D. 116); *PCornell* 18.6-7 (A.D. 291); *PFuadCrawford* 13.8 (A.D. 297/8)

ἀνηλωκυεῖα (for -υῖα) *PMich.* 188.16 (A.D. 120)

γεγονυείης, τετελευτηκυείης (for -υίῃ, -υίης) *PTebt.* 381.7,8 (A.D. 123)

γεγονυεῖαν (for -υῖαν) *PSI* 1143.10 (A.D. 164)

μεμενηκυεῖα (for -υῖα) *CPR* 27 = *MChr.* 289.22 (A.D. 190)

cf. [ἠ]βροχηκυιίας (for -υίας) *SB* 9582.18 (A.D. 195)

c. υι > υιει:

εἰδυιείης (for -υίης) *PLBat.* vi, 11.21 (A.D. 108-12); *SB* 7618 = *PSI* 1263.26 (A.D. 166/7)

υιείοῦ (for υἱοῦ) *SB* 7662.28 (late 2nd cent.)

d. υι x οι.

1) υι > οι:

οἱοῦ (for υἱοῦ) *StudPal.* xxii, 20.22 (A.D. 4); sim. *PTebt.* 311.30 (A.D. 134)

συνπεπτωκοίας (for -υίας) *PMich.* 269-71.1-2, sim. 7, so duplic. *PSI* 907.2 (A.D. 42); *PSI* 914.5 (1st cent.)
ἠδοίης (for εἰδυίης) *PMeyer* 8.20 (A.D. 151)

2) υι > υοι:

υοἱός (for υἱός) *PSI* 964.29 (6th cent.)
cf. ἀλλιλενγυοίης (for ἀλληλεγγύης) *PSI* 703.7 (A.D. 480)

3) οι > υι:

υἱ (for οἱ) *SB* 10535.33 (ca. A.D. 30); *PAntin.* 42.29 (A.D. 542)

e. υι > οιι:

γεγονοιίας (for -υίας) *POxy.* 283.15, sim. 8 (A.D. 45)
οιἱό (for υἱός) *PSI* 831.29 (4th cent: *ChrEg.* 45 [1970], 357); sim. *POxy.* 1161.3 part. rest. (4th cent.)

f. υι > οιει:

οιεἱοῦ (for υἱοῦ) *PRyl.* 160c ii.36 (A.D. 32)
οιεἱῶι *PFay.* 113.2; 114.2; 119.2 part. rest., 36 (A.D. 100)
οϊεἱόν (for υἱόν) *PSI* 1161.13 (4th cent.)
εἰδοιείας (for -υίας) *PMich.* 322a.43 (A.D. 46)
γεγονοιείᾳ (for -υίᾳ) *SB* 9373.3 (2nd cent.)
cf. μεμισθωκοιυῖαν (for -κυῖαν) *SB* 7443.14, with εἰδọυείας for -υίας 29 (A.D. 285)

g. υι > ι:

ἱοῦ (for υἱοῦ) *PMich.* 474.12, corr. 3,8 (early 2nd cent.); *PGot.* 7.3 (mid (3rd cent: *BL* v, 36)
ἱοῖς (for υἱοῖς) *PAmh.* 128 V = *PSarap.* 67.10, corr. 7 (A.D. 128 ?)

h. υι > ει:

εἱοί (for υἱοί) *SB* 10535.33 (ca. A.D. 30); sim. *PLBat.* vi, 2.22 (A.D. 92)
εἰδείης (for εἰδυίης) *CPR* 7 = *StudPal.* xx, 28.12 (A.D. 227); sim. *PMon.* 15.19 (A.D. 493: *BL* i, 311)

i. υι > η:

εἰδῆα (for εἰδυῖα) *PCornell* 49.11 (1st cent.)
ἡούς (for υἱούς) *BGU* 833 = *WChr.* 205.21 (A.D. 174)

j. υι > ηει:

εἰδηεῖος (for εἰδυίας) *SB* 8952 = *PSI* 1319.76 (A.D. 76); sim. *MChr.*

361.22 (A.D. 360); *PLond.* 1731.41 (A.D. 585); 1734.24 (late 6th cent.); *PMon.* 10.25 part. rest. (A.D. 586); 8.42 (late 6th cent.)

k. υι > αι:

αἱός (for υἱοῦ) *SB* 5590.2 (A.D. 723: *BL* v, 96)

l. Use of the diacritical mark.[1]

1) A diacritical mark is frequently written over the ι of υι:[2]

υἱ̈ός *PFlor.* 99 = *WChr.* 368.6 (1st/2nd cent.); *BGU* 1658.1 (A.D. 234); *POxy.* 1109.8, sim. 14 (A.D. 160/1); *POxy.* 2671.9,14 (A.D. 216/17); *PCairMasp.* 154 R.4 (A.D. 527-65); *PSI* 786.10,21 (A.D. 581)
υἱ̈όν *CPR* 14 = *StudPal.* xxii, 172.11 (A.D. 166)
υἱ̈οῦ *PMich.* 529.48 (A.D. 232-6); *POxy.* 1065 = *WChr.* 120.2 (3rd cent.)
υἱ̈ῷ *PCairMasp.* 162.5 (A.D. 568)
μετηλλαχυί̈η *POxy.* 2852.20 (A.D. 104/5); *CPR* 134.10 (1st half 3rd cent.)
δεδάνικυί̈ης *PStrassb.* 52.3, sim. 6, etc. (A.D. 151); sim. *PFlor.* 1 = *MChr.* 243.6,9,10 (A.D. 153)
γεγονυί̈η *SB* 9000 = *PMed.* 51.7 (A.D. 138-61)
πεπρακυί̈η *StudPal.* xx, 74.3 (A.D. 276)
ἰδυί̈ας (for εἰδυίας) *PRein.* 100.17 (A.D. 212-17)
θυί̈α *POxy.* 1488.19 (2nd cent.)
ἀγυΐᾳ *PMerton* 18.19 (A.D. 161)

2) This is parallel to the frequent use of the diacritical mark over intervocalic ι to represent the vowel glide [j] of the Latin consonantal *i*.[3]

Γαΐου (*Gaius*: no longer trisyllabic) *PLBat.* xiii, 6.1 (1st cent.); *POxy.* 1035.2 (A.D. 143); *BGU* 2060.10 (A.D. 180); etc.
Γάϊος *PMich.* 572.5,14, sim. 10 (A.D. 131)
Γαΐωνος *PLond.* 258 (ii, 28-36).132 (A.D. 94/95); sim. *POxy.* 1149.8 (2nd cent.)
Τραϊανόν *POxy.* 1266.31, sim. 38 (A.D. 98); *POxy.* 74.27 (A.D. 116)

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[1] This diacritical mark takes diff. forms, but there is no distinction in their use. The most common form is ¨, e.g., *PMerton* 12.11 (A.D. 58); *PLBat.* xiii, 16.9 (6th/7th cent.); but the single dot ˙ also occurs, e.g., *PLond.* 113 (4) (i, 208-9).3,4, etc. (A.D. 595); *PLond.* 113 (5b) (i, 211-12).9,14 (A.D. 543); as well as a straight line - and the diagonal stroke ′, e.g., *PLond.* 113 (6b) = *MChr.* 147.9, etc. (A.D. 633).

[2] When the mark appears over the υ, e.g., τῷ ϋἱῷ *POxy.* 2781.2 (2nd cent.); ϋἱός *PMerton* 78.2,6 (A.D. 191); ϋἱῷ, ϋἱός *PFlor.* 36 = *MChr.* 64.4,12 (A.D. 312), etc., it seems to mark the separation of the simple vowel υ from the preceding sound. It is sts. found over both letters, e.g., ϋἱ̈οῦ *PSI* 883.4 (A.D. 137), ϋἱ̈ός *PMich.* 224.201,257,652, etc. (A.D. 172-3); *PCairMasp.* 151.5, etc. (A.D. 570).

[3] The mark occurs only rarely over υ representing Lat. consonantal *u*, e.g., Φλαϋία *PStrassb.* 132 = *SB* 8014.1,11,24, etc. (A.D. 262-7). It occurs more freq. over the following ι, e.g., Οὐΐβίου *POxy.* 2852.25 (A.D. 104/5); Κυΐντωι *PMich.* 425.8 (A.D. 198); Φλαυΐας *POxy.* 1460.4 (A.D. 219/20 or 223/4: *BL* iv, 62), οὐΐγούλων *PMich.* 620.2, etc. (A.D. 239/40).

Τραϊανοῦ *PRein.* 98.2,14 (A.D. 109); *POxy.* 2754.1 (A.D. 111); *PVindobWorp* 17.3 (A.D. 113); etc.[1]

Note. The diacritical mark was first used to indicate the separate pronunciation of a vowel following in the same word or (in continuous writing) in successive words another vowel with which it could constitute a diphthong.[2]

1. Within a word:

Πτολεμαΐδι *PSAAthen.* 26.2 (A.D. 41-68)
Παΰνχιο(ς) *PMich.* 128 I.1 (A.D. 46/47)
Κοΐντω[ι] *PSI* 1356.1 (1st cent.)
ὀφρύϊ *CPR* 4 = *MChr.* 159.5 (A.D. 51/53); *POxy.* 73.22 (A.D. 94); *BGU* 2120.6 (mid 2nd cent.)
Παῦνι *POxy.* 1125.7 (2nd cent.); *PMich.* 380.6,10 (A.D. 170: *BL* iii, 115); 381.19 (ca. A.D. 170); *POxy.* 76.33 (A.D. 179); etc.
ἐλαϊχ[ο]ῦ *PMich.* 544.1 (A.D. 176)

2. In word-junction:

τὰ ἴσα *PMerton* 12.11 (A.D. 58)
τὸ ὑπάρχον *POxy.* 1035.11(-12) (A.D. 143)
τὸ ὕδωρ, τὸ ὑδραγωγεῖσθαι *PRyl.* 157.19,21 (A.D. 135)
σε ὑγιαίνειν *PMich.* 473.2, with τὰ ὑμῶν 13 (early 2nd cent.); *PStrassb.* 140 = *PSarap.* 100.3 (early 2nd cent.); *PIFAO* ii, 21.5 (2nd/3rd cent.); *PLond.* 479 (ii, 255-6).4 (3rd cent. ?); etc.
οὐδὲ ὑποτίθεσθαι, τὸ ὑπεναντίως *POxy.* 2722.35,37 (A.D. 154)

It is next used over a vowel following another vowel with which it could not constitute a diphthong:

τῶι ἰδίωι, εὐϋπέρβατον, δυσὶ ὕδασι *PFay.* 110.2,9,17 (A.D. 94)
λέγει ὑμῖν *PMich.* 473.28 (early 2nd cent.)
πυροῦ ἐν *PSarap.* 18.4 (A.D. 117 ?)
τοῦ ὑπομνήματος *PLBat.* xiii, 11.23 (A.D. 138)
τοῦ ἰδίου *PStrassb.* 198.5 (A.D. 181-3)
ἔρχεσθαι ὑμεῖν *PLond.* 932 (iii, 148-50).15, sim. 17 (A.D. 211)

Sometimes it also appears over a vowel following a consonant in the same or preceding word.

1. Within a word:

εἰσϊόντι *PStrassb.* 78 = *PSarap.* 45.11 (A.D. 127); sim. *PAmh.* 88 = *PSarap.* 46.20 (A.D. 128)

[1] See above, p. 72.
[2] Bell and Skeat, *Fragments of an Unknown Gospel*, 4-5.

πάρϊσιν (for -εισιν) *PLBat.* iii, 4.9 (A.D. 150/1)
συνϊερέως *BGU* 16 = *WChr.* 114.10 (A.D. 159/60)
ἀνϋπερθέτως *PMerton* 78.14 (A.D. 191); *PMich.* 610.35-36 (A.D. 282); *PMich.* 611.20 (A.D. 412)
συνᾰπέσχον *POxy.* 55 = *WChr.* 196.23 (A.D. 283)
ὁ κῦριος *PRein.* 57 = *WChr.* 390.4 (4th cent.)

2. In word-junction:

τῆς Ἰσχυρίωνος *POxy.* 72.4 (A.D. 90)
τὰς ἵσας *PStrassb.* 140 = *PSarap.* 100.9 (early 2nd cent.)
ἔχων ἱατρεῖον *BGU* 647.3 (A.D. 130)
τῆς ϋπερχρονείας *POxy.* 1125.8 (2nd cent.)
τοίνυν ὕπό *POxy.* 70.5, sim. 19 (A.D. 212/13: *BL* i, 314)
ὄντων ὑπάτων *POxy.* 1121.1 (A.D. 295)

Only rarely does the diacritical mark appear over a symbol which does not represent a distinct vowel:

ἐνοἴκησιν *PMich.* 188.13 (A.D. 120)
οὐ̈χ *PGissBibl.* 20.8 (1st half 2nd cent.)
εἰ̈ς *PMich.* 526.15 (A.D. 155)
καΐ, σοϊ *PMich.* 608.5,8,16 (6th cent.)
αὐτοῖ̈ς *PCairMasp.* 24 R.23 (ca. A.D. 551)
παραλεΐψας *PWürzb.* 20.10 (Arab.)

The interchanges of υι with υ and its orthographic equivalent οι indicate that the classical diphthong /ui/ was reduced to the simple vowel /y/.[1] The spellings υει (υιι), υιει, οιι, οιει, and perhaps ηει for υι graphically represent the glide [j] which followed before another vowel. The examples of the replacement of υι by ι or ει may represent only the [j] (ἰοῦ = [ju] ?).

The classical diphthong /ui/ was early reduced to a simple vowel elsewhere in Greek,[2] probably through assimilation of its two elements which had approximately the same degree of aperture.[3]

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[1] For the /y/ value of υ, see below, pp. 262-73.

[2] This occurred first before consonants; cf. the Hom. optatives δαινῦτο, αἰνῦτο, ἐκδῦμεν, λελῦτο, etc., Att. πηγνῦτο, Syrac. πῦς, ὕσπερ, Rhod. ὅπυς, Arg. ὗς, Att. dimin. ἰχθῦδιον (the υι was retained in dat. ἰχθύι because {-i} was the dat. morpheme: Lejeune, § 212-13, 238; Schwyzer i, 199). The loss of the second element before vowels is reflected in the Att. inscrr. by the 6th cent. B.C. and is normal from the 4th cent. B.C. on (*MS*, 59-60). An interchange of υι and υ is found in forms of υἱός from the 3rd cent. B.C. on at Delphi (Rüsch, 114-17), at Pergamum from the 2nd cent. B.C. on (Schweizer, 85-86), and at Magnesia from the 1st cent. B.C. on (Nachmanson, 46-48). In the Ptol. papp., the loss of -ι is found rarely, w. υι sporadically written υει, οιι, etc. (Mayser i², 1, 91-92). See further Schwyzer i, 199-200; Crönert, 123-5; *BDF*, § 8).

[3] Lejeune, § 213.

5. ου.[1]

There is a frequent interchange of ου with ω and with ο, and an occasional interchange of ου with υ and its orthographic equivalent οι, in various phonetic environments, including in accented as well as unaccented syllables. These phenomena indicate that the classical diphthong /ou/ was reduced to a simple vowel /u/ and that there was a confusion of /u/ and /o/ in the speech of many writers.

a. Interchange of ου and ω(ι).

There is a frequent interchange of ου and ω(ι) especially in final position, with -ω tending to be represented by -ου when unaccented. Many instances of this interchange may also be explained by syntactical confusion of genitive and dative in the second declension or of indicative and subjunctive in verbs, or by analogy in adverbs of place; but the confusion is much more frequent when ου and ω are involved.

1) ου > ω(ι).[2]

a) In final position.

i. Accented:

διὰ τῶ (for τοῦ) ... γραφ(ε)ίου *BGU* 854.11 (A.D. 44/45); sim. *PBaden* 170.20,23 (A.D. 54); etc.

σοῦ δὲ τῶ κυρίω (for τοῦ κυρίου) *PTebt.* 302 = *WChr.* 368.20 (A.D. 71/72); sim. *PLond.* 405 = *PAbinn.* 11.8 (ca. A.D. 346); *PLBat.* xiii, 18.32 (4th cent.); *BGU* 936 = *WChr.* 123.3 (A.D. 426); *POxy.* 1837.4 (early 6th cent.); etc.; cf. παρὰ σοῦ κυρῶ (for κυρίου) Σεργίου *PColt* 58.6 (late 7th cent.): for possible perispomenon accent of κυρίου, see below, p. 302

π]αρὰ το[ῦ] ὁμοπατρίου μου [ἀ]δελφῶι (for ἀδελφοῦ) *PFay.* 97.28-29 (A.D. 78)

διὰ τοῦ ἀδελφῶ (for ἀδελφοῦ) μου *PLond.* 984 (iii, 237-8).6,9-10 (4th cent.)

[ἀ]πὸ Θεωνᾶτος υἱῶ (for υἱοῦ) *POxy.* 119.18 (2nd/3rd cent.); sim. *PCair-Isidor.* 101.13-14 (A.D. 300); *PSI* 224.8: *BL* i, 393 (A.D. 330)

[π]αρὰ σῶ (for σοῦ) ἔλαβ(ον) *SB* 8985.2 (A.D. 298)

ii. Unaccented:

τρίτω (for τρίτου) μέρους *PMich.* 249.5-6 (A.D. 18); sim. *CPR* 13 = *Stud-Pal.* xx, 3.5 (A.D. 110)

δι' ἐμοῦ 'Επαγάθω (for -θου) ἰδίου *POxy.* 1716.5 (A.D. 333)

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[1] Schwyzer i, 191-4, 346-8; Lejeune, § 215; Buck, *GD*, § 23, 24, 32, 34; *MS*, 26-27, 62-63; Schweizer, 66-68, 70-72; Nachmanson, 61-62; Hauser, 40-42; Rüsch, 141-3; Mayser i², 1, 74-75, 77-79; Crönert, 129-30; *BDF*, § 30.3, 41.1; Psaltes, 38-43, 53-60, 105-6.

[2] The distinction betw. ω and ωι is purely orthographic (see above, pp. 183-6).

ὑπὲρ τῆς συμβίω (for συμβίου) *BGU* 1049.28 (A.D. 342)
τοῦ νέω (for νέου) ἔτους *POxy.* 1299.5 (4th cent.)
ἔτους ὀκτοκαιδεκάτω (for -δεκάτου) *PLond.* 1899.5 (A.D. 600)
Νίλῳ Γενναδίω (for -ίου) καὶ Θεοδώρῳ Κωμασίω (for -ίου) *PCairGoodsp.* 15.2: *BL* i, 173 (A.D. 362); *PCairPreis.* 2.2; 3.2 (A.D. 362)
μω (for μου) *POxy.* 2193.5: *BL* iii, 142 (5th/6th cent.)
Ἀμμωνίου μοναχῶ (for μοναχοῦ) *PMichael.* 127.3-4 (6th/7th cent.)
ἐνδόξω (for ἐνδόξου) ὑπεροχῆς *POxy.* 2420.10-11 (A.D. 610)
cf. τωῦ (for τοῦ) *SB* 8950 = *PSI* 1320.22 (A.D. 82-96); *SB* 4483.19 (7th cent.); etc., see above, p. 187

b) Initially and medially:[1]

εἰς ἄρτωις (for ἄρτους) *PPrinc.* 54.11,49 (early 1st cent.)
ὁμολογῶμεν (for -οῦμεν indic.) *PRyl.* 160c, ii.34 (A.D. 32); sim. *POxy.* 1835.2,7,9 (late 5th/early 6th cent.)
ὥτως (for οὕτως) *BGU* 68.17 (A.D. 113/14)
τώτους (for τούτους) *PMerton* 38.27 (mid 4th cent.)
τοῖς ἀναδιδῶσι (for -διδοῦσι) *PMich.* 210.3 (2nd/early 3rd cent.)
τοῖς ... ἔχωσι (for ἔχουσι) *POxy.* 1671.11-12 (3rd cent.)

Note. κηπουρός is spelled κηπωρῷ in *PFay.* 101 R ii.4; V ii.2 (ca. 18 B.C.) and κηπορός in *OBrüss-Berl.* 24.2 (A.D. 32); *PTebt.* 401.9,15 (early 1st cent.).[2] Elsewhere it and its derivatives are spelled with -ου-:

κηπουροῖς *PAberd.* 66.3,5 (A.D. 21); *OTait* 1722.9 part. rest. (2nd cent.); *POxy.* 1483.7 (late 2nd/early 3rd cent.); *PLips.* 97 xiv.3 (A.D. 338)
κηπουροῦ *PRyl.* 152.3 (A.D. 42); *PMilVogl.* 212 R ix.5 (A.D. 109); *OTait* 1730.1 (2nd cent.); *StudPal.* v, 127 = xx, 68 R II vi.6-7 (3rd cent.); *PSI* 774.11, sim. 7 (5th cent.); *PJand.* 66.2 (7th/8th cent.); etc.
κηπουρ<γ>ιακάς *BGU* 1118.13 (22 B.C.)
κηπουρικ(ή) *PMich.* 121 V, xii.2 (A.D. 42); 123 R, iii.22; vi.27 (A.D. 45-47); sim. 238.76 (A.D. 46); etc.

2) ω(ι) > ου.

a) In final position.

i. Accented:

ἐν τῷ νομοῦ (for νομῷ) *PVindobWorp* 1.10 (A.D. 91-96); sim. *POxy.* 2120.2 [only error] (A.D. 221)
ἐν θησαυροῦ (for θησαυρῷ) *PMich.* 393.8 (A.D. 158)
ὀκκτού (for ὀκτώ) *POxy.* 9 V.11 (3rd/early 4th cent.)

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[1] For the freq. δῶναι for δοῦναι, see Morphology X B 1.

[2] Cf. κηπωρός Archipp. Pl. (*LSJ*, s.v. κηπουρός).

ἰδιωτικοῦ (for -ικῷ) ζυγῷ *POxy.* 1126.12,13, with ἐν κλήρου καλουμένου 5 (5th cent.)

ii. Unaccented:

ποήσου, ἀποδώσου (for -σω 1 sg.) *PRyl.* 160c, i.18; ii.21 (A.D. 32); sim. *BGU* 854.4 (A.D. 44/45); *POxy.* 1871.7 (late 5th cent.)

ἐ]στρατεύσου (for -σω 2 sg.) *SB* 7354.6 (early 2nd cent.); sim. *PSI* 822.9 (2nd cent.); *POxy.* 1157.24-25 (late 3rd cent.); *POxy.* 1280.7 (4th cent.); *BGU* 984.9 (4th cent.); *PLond.* 113(1) (i, 199-204).90 (6th cent.); etc.; cf. *PColt* 19.3-4 (A.D. 548); 47.5 (before A.D. 605?); 161.4 (7th cent.)

οὐδέπου (for οὐδέπω) *PMich.* 121 R II, x.1 (A.D. 42)

οὔπου (for οὔπω) *PMich.* 474.14 (early 2nd cent.); *PMich.* 492.5 (2nd cent.); *PTebt.* 423.12 (early 3rd cent.); *SB* 9139.12 (6th cent.); μήπου *POxy.* 1068.13 (3rd cent.)

ἐν ἐποικίου (for ἐποικίῳ) *PLond.* 280 = *WChr.* 312.4 (A.D. 55); *PLond.* 335 = *WChr.* 323.9 (A.D. 166/7 or 198/9); *SB* 7.7 (A.D. 216); sim. *BGU* 232.2 (A.D. 108)

ἄνου (for ἄνω) *PTebt.* 417.30 (3rd cent.)

ἐπάνου (for ἐπάνω) *PLond.* 1164 (iii, 154-67) h.29 (A.D. 212); *POxy.* 1944.7 (6th/7th cent.)

τελέσαι τῷ γεούχου (for γεούχῳ) *SB* 7814.13 (A.D. 256); sim. *POxy.* 1288.17 (4th cent.)

τῇ συμβίου (for συμβίῳ) *SB* 7248 = *PMich.* 216.1 & V.1 (A.D. 296); *SB* 7250 = *PMich.* 218.1 part. rest.; V.1-2 (A.D. 296)

ἐν ὅρμου (for ὅρμῳ) *PCairIsidor.* 15.45 (A.D. 309/10); *PNYU* 5.9,16; 8.4; 10.6,11; sim. 11a.69,167 (early 4th cent.); *POxy.* 2017.12 (5th cent.)

τίνι λόγου (for λόγῳ) *PThead.* 24.5 (A.D. 334); 22.5, sim. 8 (A.D. 342); 23 = *PAbinn.* 44.9 (A.D. 342); *PGen.* 47 = *PAbinn.* 47.5, with ἐντίμους for ἐντίμως 3 and δεύρου for δεῦρο 8 (A.D. 346); *PLond.* 241 = *PAbinn.* 52.6 (A.D. 346); *PLond.* 403 = *PAbinn.* 49.6-7 (A.D. 346)

τῷ ἐνδώξου οἴκου (for ἐνδόξῳ οἴκῳ) *POxy.* 1897.1,3-4 (6th/7th cent.)

b) Initially and medially:

ἀγράφους (for ἀγράφως) *PMich.* 322a.2 (A.D. 46)

ἐλαιουδ[ῶ]ν (for ἐλαιωδῶν) *POxy.* 2113.17-18 (A.D. 316)

ὅπου ἐὰν ὑποβαλοῦσιν (for -ῶσιν subj.) *PCairIsidor.* 126.12, with τῶ σ[ῶ] πάγω (for -ου) 14 (prob. A.D. 308/9)

παντοίουν (for παντοίων) *PLBat.* xi, 13.20 (A.D. 372)

πρόσουπον (for πρόσωπον) *PJand.* 101.3 (5th/6th cent.)

διόρθουσι (for διόρθωσιν) *POxy.* 2005.17, corr. 5 (A.D. 513)

ψουμίων (for ψωμίων) *POxy.* 1893.12 (A.D. 535); sim. *PCairMasp.* 77.17 (Byz.)

ὧν ἂν ἐροῦμοι (for αἱρῶμαι subj.) *PLond.* 1006 (iii, 261).13-14 (A.D. 555: *BL* iii, 95)

ὑπὲρ δημοσίουν (for δημοσίων) *StudPal.* iii, 68.3 (7th cent.)

Note 1. The spelling of the month name Μεσορή as Μεσουρή *WO* 1239.5 (A.D. 14-37); *OTait* 655.5 (A.D. 21); 657.7 (A.D. 22); *PStrassb.* 21 = *PSarap.* 61.19 (ca. A.D. 125); *POxy.* 1998.6 (6th cent.); etc., probably reflects the Coptic (BS) variant ⲙⲉⲥⲟⲩⲣⲏ (q.v. in Crum, s.v. ⲙⲥⲟⲣⲉ).

Note 2. θυρουρός, etc.,[1] is the normal spelling in the papyri:

θυρουρο(ῦ) *PLond.* 604A (iii, 70-76).14 (A.D. 47); *POxy.* 2719.12 (3rd cent.); *SB* 9509 = *PMed.* 77.4, sim. 9 (3rd cent.); etc.
θυρουρῷ *SB* 9443 = *PMed.* 67 i.11 (2nd cent.); 9406.122, etc. (A.D. 246); *POxy.* 137.24 (A.D. 584); *PPrinc.* 87.14 (A.D. 612); etc.
θυρουρός *PFlor.* 71.380 (4th cent.); θυρουρ[ό]ν *PFlor.* 295.10 (6th cent.)
θυρουρικόν *SB* 9898.9 (ca. A.D. 220); *PMich.* 620.9 (A.D. 239/40); *POxy.* 1890.11 (A.D. 508)

The spelling θυρωρός, etc.,[2] is found only in the following forms:

θυρωρόν *BGU* 1061.10 (14 B.C.); sim. *BGU* 1141.34 (prob. 14/13 B.C.)
θυρωρῷ *SB* 7336.19 part. rest. (late 3rd cent.); *PRossGeorg.* v, 60.5 (A.D. 390-400)
θυρωρός *PGrenf.* ii, 91.8 (6th/7th cent.)

b. Interchange of ου and ο.

This interchange occurs only occasionally in final position, but frequently initially and medially, with accented ου tending to be represented by ο and unaccented ο by ου.

1) ου > ο.

a) In final position (usually accented):

τõ (for τοῦ) *PRyl.* 160c, i.22 (A.D. 32); *PLBat.* vi, 10.33 (A.D. 108); 22.22 (A.D. 122); etc.
ὑπὲρ αὐτõ (for αὐτοῦ) *PMich.* 197.23 (A.D. 123); sim. *BGU* 378 = *MChr.* 60.5 (mid 2nd cent.); *PSI* 468.26 (A.D. 200); etc.
καθ' ἑαυτõ (for ἑαυτοῦ) *PLBat.* xvi, 16.2 (A.D. 140); sim. *PGen.* 56 = *PAbinn.* 37.28-29 (ca. A.D. 346)
παρ' ἐσõ (for ἐσοῦ) *PHamb.* 39 G, ii.13 (A.D. 179)
ἐλέο (for ἐλαίου) *POxy.* 1142.14 (late 3rd cent.)

b) Initially and medially.

i. Accented:

κομιõνται (for κομιοῦνται) *BGU* 1123.6 (30/29 B.C.-A.D. 14)

[1] For the variants θηλουρόν, etc., see above, p. 103.
[2] θυρωρός Sapph. Hdt. A. Pl. and Luc. (*LSJ*, s.v.)

ὁμωλωγõμεν (for ὁμολογοῦμεν) *PMich.* 304.2 (A.D. 42 ?); sim. 274-5.3 (A.D. 46-47)
ἐτõμεν (for αἰτοῦμεν) *SB* 9194.8 (late 3rd cent.)
ἀποστελõμεν (for -οῦμεν) *SB* 9746.11 (early 4th cent.)
συνγηνõς (for συνγενοῦς) *BGU* 975.13 (A.D. 45)
õν (for οὖν) *PMich.* 201.5 (A.D. 99); *PFay.* 114.21 (A.D. 100); *SB* 7354.11, corr. 13 (early 2nd cent.)
ὁμ[ο]λογõντας (for ὁμολογοῦντας) *PFay.* 98.12 (A.D. 123); sim. *PTebt.* 402.3 (A.D. 172); *SB* 5676.6 (ca. A.D. 232); *PLBat.* xi, 9.4 (5th cent.); *POxy.* 2419.3 (6th cent.); etc.
νοõντες (for νοοῦντες) *PLond.* 1727.17 (A.D. 583/4)
μελλόσης (for μελλούσης) *POxy.* 2110.4 (A.D. 370)
τõτο (for τοῦτο) *POxy.* 1977.10 (6th cent.); sim. *SB* 7240.16 (A.D. 697/712)

ii. Unaccented:

ὑποργ(ίαν) (for ὑπουργίαν) *PMich.* 121 R III, v.3 (A.D. 42)
ὑποργοῦντες (for ὑπουργοῦντες) *SB* 9409 (1).65 (A.D. 255)
ἐλεοργίου (for ἐλαιουργίου) *BGU* 819.5 (A.D. 202/3); sim. *OMich.* 1091.5; sim. 1092.2 (late 3rd/early 4th cent.)
ὀδέ (for οὐδέ) *PRyl.* 174.32 (A.D. 112); *POxy.* 2986.8 (2nd/3rd cent.)
ὀκ (for οὐκ) *SB* 7992 = *PSI* 1332.32 (2nd/3rd cent.)
ἐπισποδασμοῦ (for -σπουδασμοῦ) *PTebt.* 311.24 (A.D. 134)
ὑπόρος (for εὐπόρους) *PLBat.* xi, 2 i.8 (A.D. 339)
ὁλοκοττίνος (for -νους) *POslo* 162.7-8 (4th cent.)
λοτροῦ (for λουτροῦ) *POxy.* 943.4,6, corr. 3 (6th cent.)
cf. λυτροῦ (for λουτροῦ) *POxy.* 2718.18 (A.D. 458)

Note. βούλομαι is the regular and normal spelling in the papyri, but the dialectal βόλομαι[1] is sometimes found:

βόλομαι *PAmh.* 93 = *WChr.* 314.3 (A.D. 181)
βόλησθαι (for -ησθε) *BGU* 1044.12 (4th cent.)
βόλεται *SB* 6704.10, with βουλ- 21,24 (A.D. 538)
βοληθεῖς (for -θῇς) *StudPal.* iii, 399.4 (6th cent.)
βοληθῇς *PPar.* 21b.19, corr. elsewh. (A.D. 592)
cf. also βύλομε (for βούλομαι) *PStrassb.* 35.2 (4th/5th cent.)

2) ο > ου.

a) In final position:

δεῦρου (for δεῦρο) *POslo* 159.22 (3rd cent.); *PGen.* 47 = *PAbinn.* 47.8 (A.D. 346)

[1] βόλομαι Hom. Ion. Aeol. Arcad. Cypr. (4th cent. B.C. inscr.), etc. (Veitch and *LSJ*, s.v.; Schwyzer i, 721; Mayser, i², 2, 144, 172).

ἀπού (for ἀπό) *CPR* 198.14 (A.D. 139); *StudPal.* iii, 154.2 (6th cent.)
τοῦτου (for τοῦτο) ἐδεξάμην *POxy.* 1863.7 (7th cent.)

b) Initially and medially.

i. Accented:

τριοβούλῳ (for τριωβόλῳ) *SB* 5243.8 (A.D. 7); sim. *PLond.* 278 (ii, 217-18).8-9 (A.D. 23)
οὔτι (for ὅτι) *PGen.* 56 = *PAbinn.* 37.14, corr. 15 (ca. A.D. 346); *PStrassb.* 180.9 (4th cent.); sim. *PLond.* 1244 (iii, 244).6 (4th cent.)
λούγου (for λόγου) *PSI* 884.2, with λόγον 6 (A.D. 391)
παρασχούμενος (for -σχόμενος) *PMich.* 624.5 (early 6th cent.)
δρούμου (for δρόμου) *POxy.* 2032.55 (6th cent.)
ἑκούντες (for ἑκόντες) *PLond.* 1724.12 (A.D. 578-82)

ii. Unaccented:

οὐκτοκαιτεκάτου (for ὀκτω-) *BGU* 1194.4 (ca. 11 B.C.)
οὐκτώ (for ὀκτώ) *PMich.* 342.4 (A.D. 54/55); *PSI* 781.6 (A.D. 341)
πε]ντακουσίας (for -κοσίας) *PSI* 1051.13 (A.D. 26); sim. *PGrenf.* ii, 41 = *MChr.* 183.12 (A.D. 46)
ἀπουχῆς (for ἀποχῆς) *PLond.* 139a (ii, 200-1).1 (A.D. 48)
εἴκουσι (for εἴκοσι) *PMich.* 322b.5,6,11, etc. (A.D. 51); sim. *PSAAthen.* 29.22 (A.D. 121); *PAntin.* 42.15 (A.D. 542); cf. *SB* 1190.1, mummy label (n.d.); 6176.2, inscr. (n.d.)
τριάκουντα, σαράκουντα, ἑβδωμήκουντα (for -κοντα) *POxy.* 1998.4,7,9 (6th cent.)
ἐπωμουσάμην (for ἐπωμοσάμην) *POxy.* 138.33 (A.D. 610/11)

This evidence indicates that the classical diphthong /ou/ was reduced to a simple vowel to enable ου to interchange with ω(ι) and ο, both representing /o/.[1] Its value must have been /u/ as elsewhere in the Koine and in Modern Greek,[2] because the interchange is not sufficiently frequent in comparison with the interchanges of the symbols for the other diphthongs and their corresponding simple vowels to indicate the identification of the sounds involved. Since an interchange of ου with ω/ο is rare elsewhere in Greek[3] but is paralleled in Greek

[1] See below, pp. 275-7.

[2] The inherited diphthong /ou/ had been reduced to /ō/ by the 7th cent. B.C. in Corinth., by the 5th cent. B.C. in Att.-Ion. when the spurious diphthong ου was adopted to represent the long closed /ō/ arising from contraction and compensative lengthening. It had shifted to /u/ by 4th cent. B.C. Boeot. (Schwyzer i, 191-4; Lejeune, § 215; Buck, *GD*, § 24-25). The earliest transcriptions of Eg. names render Eg. /ū/ by υ, with ου also used once it had shifted to /ū/, e.g., Πετε-αμῦνις, Πετε-αμοῦνις: ⲁⲙⲟⲩⲛ (Vergote, *Oplossing*, 11-12; *Gram.*, Ia, 22-23).

[3] ω was replaced by ου in Thess. (Buck, *GD*, § 23); cf. also Rhod. ου for ω in some words and Aeol.-Dor. ω for ου (Schweizer, 70-71; for Διόσκοροι, etc., see Schweizer, 66-67, Nachmanson, 23). In the Ptol. papp., the frequency of the interchange of ο (ω) and ου led Mayser (i, 117) to suggest that the tendency towards a closed pronunciation of the [o] sounds was general. Some interchange of ω and ου is found in late inscrr. in Syria (Audollent, #15.3,6,22,

loanwords in Coptic,[1] it seems to rest on bilingual interference. In Coptic, ⲟⲩ is a reflex of ⲱ after ⲙ and ⲛ,[2] and it has been proposed that ⲱ and ⲟⲩ represented the same sound,[3] but a phonemic opposition between /o/ and /u/ seems well established for Coptic.[4]

c. Interchange of ου and υ.

This is found occasionally in initial, medial, and final position and in accented and unaccented syllables without distinction.

1) ου > υ:

μυ (for μου) *PSI* 904.2, with Διδύμυ for Διδύμου 2,4, corr. 6, so duplic. *PMich.* 341.1,1 & 3 (A.D. 47)
ἐμῦ (for ἐμοῦ) *PLond.* 1925.14 (mid 4th cent.); *PLond.* 456 (ii, 335).9 (7th cent.)
συ (for σου) *PTebt.* 444 descr. (1st cent.); *PMich.* 212.12, corr. also 12 (2nd/early 3rd cent.); *PMich.* 515.3 (late 3rd cent.); etc.
τύς (for τούς) *PMich.* 333-4.14,19,26 (A.D. 52)
υἱῦ (for υἱοῦ) *PPrinc.* 152 ii.7 (A.D. 55-60)
τύτων (for τούτων) *POxy.* 1482.10, corr. 17, with συ for σου 22 (2nd cent.)
τῦτο (for τοῦτο) *PAntin.* 42.27 (A.D. 542)
μηνὸς Ἁδριανῦ (for -νοῦ) *PSI* 812.8 (A.D. 149/50)
δηλῦται (for δηλοῦτε) *POxy.* 1584.30 (2nd cent.)
τοῖς δέυσι (for δέουσι) *PMilVogl.* 137.30 (A.D. 165)
Ἀντωνίνυ (for -νου) *SB* 7379.1 (A.D. 177)
τῦ (for τοῦ) *PBeattyPanop.* 1.332 (A.D. 298)
τὺς ἐσομένυς ὑπάτυς (for τοὺς ἐσομένους ὑπάτους) *SB* 7621.266, with τύς also 255 (A.D. 310-24)

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52 [3rd cent.]; *PColt* 31.20 (6th cent.]; 58.6 [late 7th cent.]). In MGr., unaccented ancient ω (rarely ο) sts. appears as ου, esp. in the vicinity of a labial (κουπί < κώπη) but in some other positions as well, as τραγοῦδι (Hatzidakis, *Einl.*, 106-7; Dieterich, 15-16).

[1] The interchange of ⲟⲩ and ⲱ is freq. both in Eg. words and Gr. loanwords in Copt. docc.; the interchange of ⲟⲩ and ⲟ is common in Thebes, rare elsewh. exc. in Gr. loanwords (Worrell, 103-5; Kahle, VIII, § 46, 56, 56B, 62; Wessely, *Lehnwörter*, 7; Hopfner, 6; Böhlig, 104).

[2] Also in A in word-final position (A ⲕⲟⲩ: S ⲕⲱ, etc.) and in connection w. a laryngeal (A ϣⲟⲩⲟⲩⲧ: S ϣⲱⲱⲧ, etc.). By way of exception to the shift of /o/ > /u/ after /m n/, all dialects have ⲱ before the 2nd pl. suffix ⁻ⲧⲛ̄, e.g., S ⲛ̄ⲙⲱⲧⲛ̄ (Steindorff, 31-33; Vergote, *Gram.*, Ia, 22; "Dialectes," 244).

[3] Šmieszek, "Some Hypotheses," pp. 12-14.

[4] ⲟⲩ and ⲱ are not entirely in complementary distribution. Besides the exception after ⲙ/ⲛ noted above (note 2), ⲟⲩ is occ. found in other positions in which ⲱ can also stand, in loanwords, e.g., ⲥⲓⲟⲩⲣ "eunuch," ⲕⲥⲟⲩⲣ "ring," ϩⲃⲟⲩⲣ "left hand," in onomatopoeic terms, e.g., ⲕⲟⲩⲕⲛ̄ "drum," ⲕⲣⲟⲩⲣ "frog," and secondarily in Copt. words in which it develops from Eg. *w*, e.g., in the indef. art. ⲟⲩ– (full form ⲟⲩⲁ = the numeral "one"). There are also a few minimal pairs, e.g., ϩⲟⲩⲛ "inward part; inside, within"; ϩⲱⲛ "to approach; to command."

δι' ὅλυ (for ὅλου) *BGU* 1049.8 (A.D. 342)
ὐ (for οὐ) *PGen.* 56 = *PAbinn.* 37.14, corr. 17-18 (ca. A.D. 346)
φρυρῷ (for φρουρῷ) *POxy.* 1193.4 (4th cent.)
Ματρέυ, Ἀδέυ (for Ματρέου, Ἀδαίου) *POxy.* 136 = *WChr.* 383.43,44 (A.D. 583)

2) υ > ου:

οὑπό (for ὑπό) *PRyl.* 160c, ii.16 (A.D. 32)
ἀνουπερθέτως (for ἀνυπερ-) *PHermRees* 27.9 (5th cent.)
σουνχρηματίζειν (for συν-) *SB* 7568 = *PMich.* 232.23 (A.D. 36); sim. 7515.308 (A.D. 155); *PMichael.* 23 B.7 (A.D. 296)
τούω (for δύο) *SB* 5109 = *PRyl.* 160d, i.2 (A.D. 42); sim. *PMich.* 201.6-7 (A.D. 99)
ἀχούρου γώμος (for ἀχύρου γόμους) *SB* 3565.3 (A.D. 95/96)
οὑμᾶς (for ὑμᾶς) *PBaden* 100.10 (late 1st cent.)
ἀνέσουρεν (for ἀνέσυρεν) *POxy.* 2758.12 (ca. A.D. 110-12)
ἥμισου (for ἥμισυ) *POxy.* 898.12 (A.D. 123); *PMich.* 572.19-20 (A.D. 131); *PTebt.* 375.9, etc. (A.D. 140); *POslo* 31.9,12 (A.D. 138-61?); *PLond.* 905 (iii, 219).7 (2nd cent.); *PPar.* 17.5 (A.D. 154); *PAmh.* 91.16 (A.D. 159); *BGU* 129.5 (A.D. 188/9); *WO* 987.14 (A.D. 211); etc.
ἐνγούου (for ἐγγύου) *StudPal.* xxii, 4 iii.9 (A.D. 127/8)
cf. Παοῦνι (for Παῦνι: cf. Παοῖνι above, p. 198) *OTait* 1062.4,6 (A.D. 128)

d. Interchange of ου and οι.[1]

ου sometimes interchanges with οι, the phonetic equivalent of υ.

1) ου > οι:

νομοῖ (for νομοῦ) *BGU* 713.5, with οἱλή for οὐλή 14, etc. (A.D. 41/42)
οἱλή (for οὐλή) *SB* 5110 = *PRyl.* 160d ii.6,8,23, with ἐπιζήμοι for ἐπισήμου 9 (A.D. 42); *BGU* 2044.8,10 [same scribe] (A.D. 46); *StudPal.* xxii, 35.7,9 (A.D. 50)
κάμοι (for γάμου) *BGU* 975.17-18 (A.D. 45)
τοῖ (for τοῦ) Ἀρείου *PLBat.* vi, 3.23 (A.D. 92)
οἱ, οἰδεενός, οἰδέ (for οὐ, οὐδενός, οὐδέ) *CPR* 23 = *MChr.* 294.19-20 (prob. A.D. 138-61)
οἰδ̣έ (for οὐδέ) *POxy.* 2407.6 (late 3rd cent.)

2) οι > ου:

οὐκία (for οἰκία), etc. *SB* 8950 = *PSI* 1320.18-20 four times (A.D. 82-96)
ἤτου, οὐ (for ἤτοι, οἱ) *PBeattyPanop.* 1.105,124 (A.D. 298)

[1] The freq. confusion of μου and σου w. μοι and σοι is prob. syntactical, e.g., μοι for μου *POxy.* 1704.6,11 (A.D. 298); *MChr.* 361.5-6 (A.D. 360); σοι for σου *PMich.* 482.11,12 (A.D. 133); 488.2 (2nd cent.); 516.9 (late 3rd cent.); μου for μοι *PMich.* 423-4.9 (A.D. 197); σου for σοι *BGU* 260 = *MChr.* 137.6 (A.D. 89: *BL* i, 435); *POxy.* 1474.18 (A.D. 216); *POxy.* 1683.19,20 (late 4th cent.).

The occasional interchange of ου with υ might indicate that υ represented /u/ in Egypt as in all the classical dialects except Attic-Ionic,[1] but the evidence for the identification of the sound originally represented by οι with that represented by υ[2] and the much more frequent interchange of υ with η[3] is a stronger indication of the /y/ pronunciation. The interchange of ου with υ/οι would then indicate the confusion of /u/ and /y/ through bilingual interference, since there was no sound in the Egyptian vowel system corresponding to /y/. In Coptic orthography, the letter ⲩ stood by itself only in Greek loanwords; in Coptic words it served only to represent the second element of a diphthong.[4]

e. Interchange of ου with other vowels.

ου is also found to interchange with several other vowel symbols. These interchanges are only sporadic and do not reflect phonological changes. Most can be explained on the orthographic level or as analogical formations.

1) ου is replaced by ευ:

ἔτευς (for ἔτους) *PLond.* 1273 (iii, 174).7 (A.D. 29)
εὐδέν (for οὐδέν) *PLond.* 1168 (iii, 135-8).41 (A.D. 44: *BL* i, 282)
τεῦ ... Τραιανε̣ῦ τεῦ κυρίε̣υ ... Ἀμμωνίε̣υ (for -ου) *SB* 9545 (14).2-5 (A.D. 98)
ἕως θέρευς (for θέρους) *PAntin.* 43.11 (late 3rd/4th cent.)
The converse occurs in εἱππούς (for ἱππεύς) *PHamb.* 39 G ii.11, with εἱππεύς 10 (A.D. 179); cf. βουλιουτῆς (for βουλευτῆς) *PCornell* 37.6 (3rd cent.)

Note. The Latin name *Lucius*, usually transcribed Λούκιος, appears sometimes as Λεύκιος.[5]

Λεύκιος *PLond.* 1171 V (iii, 105-7) c.1 (A.D. 42)
Λευκίου *BGU* 1158 = *MChr.* 234.3 abbrev. (9 B.C.); *BGU* 112 = *MChr.* 214.8 (A.D. 59/60+); *POxy.* 250.2 (A.D. 61 ?); cf. *SB* 303.5, inscr. (A.D. 59/60)
[Λ]ευκ(ίῳ) *BGU* 1138 = *MChr.* 100.1 (19/18 B.C.)
Λούκιος, Λουκίου *BGU* 1113 = *MChr.* 169.5,10, etc. (14 B.C.)
Λούκιος *BGU* 1174.2 abbrev. (5 B.C.); *PFay.* 110.1 (A.D. 94); *PLond.* 119 (i, 140-9).53 (2nd cent.); *BGU* 842. v.22 (A.D. 187); etc.
Λουκίου *PAmh.* 68 = *WChr.* 374.20 (A.D. 81-96); *PTebt.* 298 = *WChr.* 90.27 (A.D. 107/8); *PLond.* 907 = *MChr.* 337.6 (A.D. 134); *PLond.* 251 = *PAbinn.* 64.23 (ca. A.D. 346); etc.; cf. *SB* 304.5, inscr. (A.D. 59/60)

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[1] Schwyzer i, 181-4; Lejeune, § 226; Buck, *GD*, § 24, Cf. the gradual replacement of υ by ου in Boeot. inscrr. from the early 4th cent. B.C. on.

[2] See above, pp. 197-9.

[3] See below, pp. 262-7.

[4] A rare change of ⲩ to ⲟⲩ in Gr. loanwords in Copt. is also found (Böhlig, 104).

[5] This may occur through assimilation to a Gr. name, presumably found in *PHibeh.* 42.10 (262 B.C.); see Meinersmann, 82. Similar spellings are found in inscrr. and in the Ptol. papp.; see Schweizer, 84; Nachmanson, 61 w. lit.; Hauser, 40; Mayser i², 1, 95.

2) ου is replaced by αυ in αὐτέν (for οὐδέν) *StudPal.* xxii, 46.9 (1st cent.); αὐ (for οὐ) *PLips.* 32 = *MChr.* 93.5 (ca. A.D. 250).

3) ου is replaced by α in τάτου (for τούτου) *SB* 8950 = *PSI* 1320.20 (A.D. 82-96).

4) ου is replaced by ε in κάδες (for κάδους) *PHermRees* 15.4 (late 4th/early 5th cent.).

5) ου is replaced by εω in and συγγενέως (for -οῦς) *PVars.* 10 iii.26: *BL* iv, 102 (A.D. 156).

6) ου is replaced by η in ἀσχοληιμένο(υ) (for ἀσχολουμένου) *POxy.* 47.3 (late 1st cent.).

7) ου is expanded to οου in τοὺς φόροους (for φόρους) *PLBat.* xi, 9.26 (5th cent.) and to ουου in τουοῦ (for τοῦ) *SB* 5269 = *StudPal.* xx, 220.24 (A.D. 618).

f. ου and variants in transcription of Latin.[1]

There is some fluctuation in the transcription of Latin vowels. In some words, in which variants are rare, the fluctuation is the result of an interchange of ου with ω, ο, or υ; in others, the fluctuation represents diverse practices of transcription.

1) ου is the normal transcription of *ū*; ο is found only sporadically:

κουράτωρ *curator SB* 7600.26 part. rest. (A.D. 16); *OTait* 2038.5 (2nd half 2nd cent.)
κουράτορος *BGU* 705.4,6 (A.D. 206)
κουράτορι *PHamb.*39 A iii.21, F i.3, etc., with κοράτωρι G ii.12 (A.D. 179); *SB* 9118.2 (2nd half 3rd cent.); *PLond.* 1787.23 (6th cent.)
κουράτορσι *SB* 6968.3 abbrev., 4 (Rom.); etc.
προκουρατόρων *PSI* 477.2 (6th cent.); sim. 480.5 (5th/6th cent.)
but πρ[ο]κοράτορι *PSI* 703.6 (A.D. 480)
ἀδιούτορος *adiutor PRossGeorg.* ii, 26.8 (A.D. 160); *PLond.* 1171.89 (A.D. 566-73); *WChr.* 470 = *PMon.* 2.22 abbrev. (A.D. 578)
ἀδιούτορι *StudPal.* iii, 315 V.1 (5th/6th cent.); sim. *PMon.* 8.50 (prob. late 6th cent.); 13.77; 14.104 (A.D. 594); etc.
πεκουλίῳ *peculium PSI* 1040.18 (3rd cent.)
πεκουλίου *BGU* 96.14 part. rest. (prob. 2nd half 3rd cent.); *PCairMasp.* 312.101 (A.D. 567); 313.68 (2nd half 6th cent.); etc.
τριβοῦνος *tribunus PTebt.* 419.7 (3rd cent.); *PFlor.* 50.119 part. rest. (A.D. 268); *PSI* 768.15 (A.D. 465); *PCairMasp.* 40.5 (6th cent.); etc.

[1] Cf. Meinersmann, 109-12; Wessely, "Lat." *Wiener Studien* 25 (1903), 49-60.

τριβούνῳ *SB* 9499 = *PMed.* 70.8 (4th cent.); *POxy.* 1891.2 (A.D. 495); 1959.3 (A.D. 499); etc.

τριβούνων *PGron.* 10.30-31 (4th cent.); *PJand.* 43.4 (A.D. 525); etc.

ἰουρατόρων *iurator SB* 7669 = *PCairIsidor.* 3.9, sim. 36,37; 4.8; 5.7, sim. 42 (A.D. 299); *PRyl.* 656.7, sim. 20,21 (A.D. 300); etc.

ἰουράτωρ *PThead.* 54.21,22; 55.17 (A.D. 300: *BL* iii, 249)

οὐσουφροῦκτον *usufructus PLond.* 1044 = *MChr.* 367.13,14,20 (6th cent.)

but cf. νόκαι *nuces PLond.* 481 (ii, 321-3) R.14,20, with λοῦνα *luna* 5, οὔας and οὔα, *uvas*, *uva* 12,15, Lat.-Gr. glossary (4th cent.)

2) ου is the usual transcription of *ŭ*, but in some words it fluctuates with ο and in others with υ or ε.

a) Words in which the transcription with ου predominates, and in which the rare transcription with ο represents an interchange of ου and ο:

Αὐγούστου *Augustus PLond.* 979 (iii, 234-5).2,3-4 (A.D. 346); *PHermRees* 19.18 (A.D. 392); *PSI* 703.2 (A.D. 480); etc.

βουκίαι *buccea POxy.* 397 descr. (early 1st cent.)

βουκελλάριος *buccellarius PErl.* 67.22 abbrev. (A.D. 590); sim. *POxy.* 154.1 (7th cent.); *StudPal.* iii, 344.1 (6th/7th cent.)

βουκελλαρίο(υ) *PLond.* 871 (iii, 269).4 (A.D. 603); sim. *PApoll.* 30.1 (ca. A.D. 713)

βουκκελλαρίων *BGU* 836 = *WChr.* 471.12 (6th cent.); sim. *PErl.* 81.3,11 (6th cent.); etc.

ταβουλάριος *tabularius PSI* 281.39 (2nd cent.); *PLond.* 1157 (iii, 61-68).15, etc. (A.D. 226/7: *BL* i, 277); *POxy.* 123.26 (3rd/4th cent.); *PRossGeorg.* iii, 50.22 (A.D. 613/98)

ταβουλαρίων *PHamb.* 31.17 (2nd cent.); *PLond.* 985 (iii, 228-9).15 (4th cent.)

ταβουλαρίου *WChr.* 81 = *PAchmim* 8.8, 21, abbrev. (A.D. 197); *PRyl.* 427 frag. 3.5; sim. 22.3 (A.D. 198-209); etc.

but ταβολαρ(ίου) *POxy.* 2419.3, with ἀκολουθο͂<ν>τος also 3 (6th cent.)

νούμμου *nummus PHamb.* 73.14 part. rest. (2nd cent.); *BGU* 326 = *MChr.* 316 ii.4 (A.D. 194); *PRyl.* 607.5 (late 3rd cent.); etc.

δουκηνάριον *ducenarius POxy.* 2130.16-17 (A.D. 267)

δουκηναρίου *POxy.* 1711.5 (late 3rd cent.); *SB* 9349.6 (2nd half 3rd cent.); *StudPal.* v, 52-56 ii = *WChr.* 39.10 (A.D. 267)

δουκηναρίοις *SB* 2253.3 (Byz.)

δουκός *dux MChr.* 196.9 part. rest. (A.D. 307); *PErl.* 105.7 abbrev. (early 4th cent.); *PLBat.* ii, 13 i.9 (4th cent.); *PHarris* 94.8 (late 4th cent.); *PSI* 481.2 (5th/6th cent.); etc.

σούμμου *summus PBeattyPanop.* 1.393.395, etc. (A.D. 298); sim. 2.28 (A.D. 300)

σούμῳ, σούμμῳ *PHamb.* 39 A iii.21; C ii.2, etc. (A.D. 179)

σιγγουλάριος *singularius POxy.* 2284 A.2 (A.D. 258); *PSI* 1365.3 (A.D. 419); *POxy.* 1882.8 (ca. A.D. 504); *PLond.* 1797.6 (A.D. 546?); etc.
σινγουλαρίοις *PAntin.* 33.40 (A.D. 346?); sim. *POxy.* 2047.7 (5th cent.)
σιγγουλαρίου *POxy.* 1880.5 (A.D. 427); *PRossGeorg.* iii, 15.4 (6th cent.); *PFlor.* 291.4,21 (6th cent.); etc.
ἀννουμέρῳ (*numerus*) *SB* 2253.11 (Byz.)
νουμεραρίου *PFlor.* 295.8 part. rest.; sim. *PLond.* 1788.7 (6th cent.)
but ἀπονομιραρίου *POxy.* 2004.2 (5th cent.)
κοντουβερνάλιον *contubernalis PGen.* 79 = *PAbinn.* 42.2 (ca. A.D. 346); sim. *PLips.* 40 ii.22 (late 4th/early 5th cent.); *PVars.* 47 descr. (5th cent.); *POxy.* 2046.43,47-54 (late 6th cent.)
ῥεπούδιον *repudium PCairMasp.* 154 R.2, sim. 13 (A.D. 527-65); 153.7, etc. (A.D. 568); *POxy.* 129 = *MChr.* 296.1,10,12,14 (6th cent.)
ῥιπούδιον *PLips.* 39 = *MChr.* 127.10 (A.D. 390); perh. also *PCairMasp.* 121.31 abbrev. (A.D. 573)
ῥεπουδίου *PFlor.* 93 = *MChr.* 297.6, sim. 15 (A.D. 569); *PHermRees* 29.3 (A.D. 586)
ἀκκουβίτου *accubitum PSI* 225.5 (6th cent.); *PLond.* 1724.30 abbrev. (A.D. 578-82); 1733.19,71 (A.D. 594); *PMon.* 8.13 (prob. late 6th cent.); etc.
ἀκουβίτου *PMon.* 9.34 (A.D. 585)
ἀκκούβιτον *PFouad* 85.4 (6th/7th cent.)
σπεκουλάτορι *speculator PMich.* 469 V abbrev. (early 2nd cent.); *PCairIsidor.* 127.1-2 (A.D. 310); *PErl.* 105.34 (early 4th cent.); etc.
σπεκουλάτορος *PCairIsidor.* 32.9-10 abbrev. (A.D. 279); *POxy.* 1193.1 part. rest. (4th cent.); *PFlor.* 71.652 abbrev. (4th cent.); etc.
σπεκουλάτωρ *PFlor.* 71.811 (4th cent.); *POslo* 88.20 (late 4th cent.)
ἀμπούλλιον *ampulla PLond.* 191 (ii, 264-5).16 (A.D. 103-17); *SB* 9238.19 part. rest. (A.D. 198-211); 9350.15 part. rest. (late 3rd cent.)
but ἀνπύλλης *BGU* 40.2 (2nd/3rd cent.: *BL* i,11)

b) Words in which ου fluctuates with ο, mainly in names in which ο is generally earlier.

i. Names in which ου is more frequent:

Σολπικίου *Sulpicius BGU* 1059.4 (ca. 13 B.C.)
but Σουλπίκιος *PAmh.* 64.11 part. rest. (A.D. 107); 65.3-4,6 (early 2nd cent.); *PMilVogl.* 27 i.2; ii.2; iii.3, all part. rest. (A.D. 128/9); *POxy.* 237 viii.21 (A.D. 186)
Σουλπικίου *PLBat.* vi, 15.28,34 (up to A.D. 114/15); 24.67 (up to A.D. 124); *PSI Omaggio* 8.7 (A.D. 138/9?); *PJand.* 145.4 part. rest. (A.D. 224); *POxy.* 712 = *MChr.* 231.22 (late 3rd cent.); etc.
Σεκόνδας *Secunda POxy.* 294.9 (A.D. 22)
Σεκόνδου *Secundus BGU* 802 xii.12; xiv.24: *BL* i, 68 (A.D. 42)
cf. Σεκόνδος *SB* 5886.15, inscr. (A.D. 89)
but Σεκοῦνδον *SB* 7600.17 part. rest. (A.D. 16); *POxy.* 71 ii.10 (A.D. 303); *PFouad* 82.4 abbrev. (4th/5th cent.)

Σεκού(νδου) *SB* 10248.25 (A.D. 59); *SB* 4415.4 (A.D. 144); sim. *POxy.* 2242.9 (3rd cent.); cf. *SB* 5793.13, inscr. (A.D. 93)
Σεκούνδῳ *PTebt.* 296 = *WChr.* 79.11 (A.D. 123)
Σεκοῦνδος *SB* 4630.1 (2nd cent.)
Σεκοῦνδα *PCairPreis.* 27.12 part. rest.; 28.10 (A.D. 172); *PMich.* 224.5395 (A.D. 172-3); (for -ης) *SB* 4252 = *OMeyer* 56.4 (2nd cent.)
Σεκούνδης *MChr.* 372 iv.18 (2nd cent.)

ii. Names and words in which ου and ο fluctuate:

Λοκρητίας *Lucretia* *BGU* 567 ii.25 (2nd cent.); sim. *PMich.* 224.5846 (A.D. 172/3)
Λοκρήτιος *Lucretius* *BGU* 1599 ii a.22 part. rest. (A.D. 54/68); sim. *PMichael.* 9 b.3 (ca. A.D. 92)
Λοκρῆτις *PMich.* 224.5086,6080 (A.D. 172-3); *PSI* 982.21 (3rd cent.)
Λοκρητίου *PLips.* 91.4, etc. (2nd cent.); *BGU* 301.4 (A.D. 157); *PStrassb.* 181.3-4, sim. 20 (A.D. 166)
Λουκρητίας *BGU* 700.4 (2nd cent.); *PMarmarica* vii.17 (A.D. 190/1 ?)
Λουκρήτιος *SB* 9574.1 (2nd cent.); *PLips.* 31.8,9 (A.D. 193-8); *BGU* 1629.13 part. rest. (4th cent.); 1640.2 (4th/5th cent.)
Λουκρητίου *PMarmarica* vi.37; vii.13,20 (A.D. 190/1 ?); *BGU* 1617.15 (prob. A.D. 198); *SB* 9105.7 (late 2nd cent.); *PLeit.* 16.3 (A.D. 244-7); *SB* 9410 (5).19 (A.D. 251-5); *PRossGeorg.* v, 58.35 (4th cent.)
Λουκρῆτις *OTait* 1674.1 (2nd cent.)
κοσ[τ]ωδε[ία] *custodia* *POxy.* 294.20 (A.D. 22)
κοστωδ(ίας) *PAberd.* 78.4 (A.D. 158)
κουστωδιῶν *PRyl.* 189.2 (A.D. 128)
ἁρμοκούστωρ *OTait* 2022.1 (2nd half 2nd cent.); etc.
ἑρμοκούστωρι *PHamb.* 88 V.3 (mid 2nd cent.)
cf. ἁρμορ[οκ]ούστορ *SB* 7979.2-3, inscr. (A.D. 149 ?); sim. 6146.3-4; 6147.2-3; 6961.5-6, inscrr. (n.d.); sim. *PHamb.* 39 G ii.8 (A.D. 179)
ὀγκιῶν *uncia* *BGU* 781 i.4, etc., passim (1st cent.); *POxy.* 1449.49 (A.D. 213-17); sim. *POxy.* 2729.33,34 (4th cent.); etc.
ὀγκίας *PSAAthen.* 30 R.15, sim. 4 (A.D. 178/9); *POxy.* 2728.32 (3rd/4th cent.)
ὀγκίαν *POxy.* 1971.6 (late 5th/6th cent.); *PFlor.* 288.6 (6th cent.); sim. *PLond.* 1730.22; 1731.29 (A.D. 585)
οὐνκιῶν *PErl.* 21.8,24 (ca. A.D. 195); οὐγκιῶν *PStrassb.* 131 = *SB* 8013.7 (A.D. 363); *PLond.* 113(1) (i, 199-204).81,92 (6th cent.)
οὐγκίαν *POxy.* 931.4 (2nd cent.); *PSI* 1265.13 (A.D. 426/41); sim. *BGU* 953.3,4,6 (3rd/4th cent.)
οὐγκίας *PLond.* 1823.7 (4th cent.); *PLond.* 1660.43 (ca. A.D. 553)

Note 1. *Actuarius* is normally transcribed in Roman papyri as ἀκτάριος, in early Byzantine as ἀκτοάριος or ἀκτουάριος, in later Byzantine as ἀκτουάριος:

ἀκταρίῳ, ἀκταρίου *PHarris* 96.14,24 (1st/2nd cent.)
ἀ]κταρίου *BGU* 741 = *MChr.* 244.4 (A.D. 143/4); sim. *SB* 4425 vii.4 (2nd cent.); *PMilVogl.* 28.45 (A.D. 162/3)
ἀκτάριος *OStrassb.* 617.4,5 (2nd cent.)
ἀκταρίῳ *SB* 6221.2 part. rest. (2nd cent.); *BGU* 848.1 part. rest. (3rd cent.); *OTait* 1834.2 (2nd/3rd cent.)
ἀκτοαρίου *SB* 9499 = *PMed.* 70.9: *SB* has ἀκτουαρίο(υ) (4th cent.)
ἀκτοάριος (for -ίῳ) *PHermRees* 70.1, with ἀκτουάριος 71.1,4 part. rest. [same hand] (early 5th cent.)
ἀκτουαρίῳ *PErl.* 106.24 (early 4th cent.); *PLond.* 409 = *PAbinn.* 10.13 (ca. A.D. 346); *PFlor.* 297.75 abbrev. (6th cent.)
ἀκτουάριος *PLond.* 249 = *PAbinn.* 75.14 (ca. A.D. 346); *PFlor.* 71.387 (4th cent.); *StudPal.* viii, 1192.1 abbrev. (5th cent.); etc.
ἀκτουạρίων *PLond.* 237 = *PAbinn.* 26.20 (ca. A.D. 346); *PLond.* 1855.6 (A.D. 493)

Note 2. *Januarius* is always transcribed with ου representing *u*, but *Februarius* fluctuates between Φεβράριος and Φεβρουάριος:

Ἰανουαρίων *PBeattyPanop.* 2.37, etc. (A.D. 300); *PMerton* 31.6,12,20 (A.D. 307); 91.20 (A.D. 316); *CPR* 233 = *WChr.* 42.6 (A.D. 314); cf. *PColt.* 29.2 (A.D. 590)
Ἰανουαρίῳ *PGiss.* 102.15 (A.D. 317); *PCairMasp.* 126.33 (A.D. 541)
Φεβραρίων *BGU* 326 = *MChr.* 316 ii.18 (A.D. 194); *PFlor.* 382.8 (3rd cent.); *POxy.* 43 R v.30 (A.D. 295); *PThead.* 32.11,39 (A.D. 308)
Φεβρουαρίο(υ) *PLond.* 1663.20 (6th cent.); sim. *SB* 9529.6 (6th/7th cent.); cf. *PColt* 64.14 (A.D. 676)

iii. Names and words in which ο predominates:

Σατορνῖνος *Saturninus*[1] *SB* 4335.1 (A.D. 89); *SB* 9017(11).1 (1st/2nd cent.)
Σατορνεῖλος *PMich.* 473.5-6 part. rest., sim. 13,16,32 (early 2nd cent.); *BGU* 600.27 (A.D. 120-40: *BL* i, 55); *BGU* 155.2-3 (A.D. 153); etc.
Σατορνίλου *OTaitPetr.* 261.1 (A.D. 41); 271.1 (A.D. 43/44); sim. *BGU* 326 = *MChr.* 316 ii.5,20 (A.D. 194); etc.
Σατορνίνου *PLips.* 62 i.1,15 (A.D. 384)
Σατορνῖνον *BGU* 378 = *MChr.* 60.7 (2nd cent.)
Σατορνίλη̣ν *Saturnina* *BGU* 117.16 (A.D. 189); etc.
Σατορνάλια *PFay.* 119.28 (ca. A.D. 100)
Σατουρνίνου *POxy.* 899 = *WChr.* 361.10 (A.D. 200)
Σατουρνεῖλος *SB* 7817 = *PSI* 1328.8, sim. 9 (A.D. 201)
Σατουρνείνῳ *BGU* 156 = *WChr.* 175.3 (A.D. 201)

c) Words in which ου fluctuates with υ or ε.

[1] For the interchange of λ and ν in this name, see above, p. 109.

i. ου and υ fluctuate in the transcription of *turma*:

τύρμης *SB* 7600.26 (A.D. 16); *PHamb.* 1.9 (A.D. 57); 2.8 (A.D. 59); *BGU* 69 = *MChr.* 142.2,3,18 (A.D. 120); *BGU* 142 = 455.12 (A.D. 159); etc.; cf. *SB* 1018.4; 1019.3; 4126.5; etc., inscrr. (n.d.)

τούρμης *PGrenf.* ii, 51.6 (A.D. 143); *PHamb.* 39 A iii.20; F i.2; G ii. 2,3,4, etc. (A.D. 179); *BGU* 614.2,12 (A.D. 217); etc.; cf. *SB* 1016.6, inscr. (A.D. 81); 1022.2, inscr. (Rom.)

ii. υ is usual in the transcription of *centuria*, but several other spellings are found:

κεντυρία *PRyl.* 343 descr. (A.D. 14-37); *BGU* 423 = *WChr.* 480.24 abbrev. (2nd cent.)

κεντυρίας *PSI* 1318 i.5 part. rest. (A.D. 31); *PLond.* 142 (ii, 203-4). 4,20 (A.D. 95); *BGU* 832.18 (A.D. 113); etc.

κεντυρίᾳ *PSI* 1063.6, etc., with κε[ν]τ̣ο̣υ̣ρ̣ίᾳ̣ 42 (A.D. 117)

κε<ν>τυρίαν *SB* 7353 = *PMich.* 491.7 (2nd cent.)

κ[ε]ντουρίας *SB* 8518.5, inscr. (1st cent. ?)

κεντέρας *POxy.* 2349.2,27 (A.D. 70)

κεντυρίωνα *SB* 7600.17 (A.D. 16)

κεντυρίων *SB* 8449.10 part. rest. (A.D. 39/40); 7258.4 part. rest. (1st cent.); *PSAAthen.* 63.22 (2nd cent.); *PLond.* 1727.68 (A.D. 583/4); *PLond.* 1729.48 (3rd hand), 52 (7th hand), with κεντηρίων 51 (6th hand) (A.D. 584); *PLond.* 1731.47 abbrev. (A.D. 585); etc.

κεντορίωνος *POslo* 26.23-24 (5/4 B.C.)

κεντορίωσι *SB* 8427.9 (25 B.C.)

Note. ε is usual in the transcription of *liburna*, but υ is found:

λιβέρνου *BGU* 455.9 (1st cent.); *POxy.* 2042.11 (5th cent.)

λυβέρν̣[ου *BGU* 709.2 (1st hand), with λι]βύρν̣ο̣υ 23 (2nd hand) (A.D. 138-61)

λίβερνον *StudPal.* viii, 1094.2 (6th cent.); *SB* 5953.1,3 (Byz.)

λιβερναρίον (for -ίων) *POxy.* 1902.4 (early 6th cent.)

λιβύρνου *BGU* 741 = *MChr.* 244.7 (A.D. 143/4)

λιβυρναρίων *StudPal.* xx, 123.33 (A.D. 444); etc.

3) ου occasionally transcribes *ō*, but ω is usual.

a) ου is more common than ω in the transcription of the following words:

πατρεμουνίου *patrimonium* *PStrassb.* 337.4-5 (A.D. 330/1); sim. *PFlor.* 320.4 (A.D. 373); *PLBat.* xi, 2 i.12, w. -μων- ii.15 (A.D. 339)

πατριμου[ναλίας *PRyl.* 658.6 (early 4th cent.); sim. *PStrassb.* 325 ii.5 (A.D. 321 ?)

but πατριμων<ι>αλίων *POxy.* 900 = *WChr.* 437.5 (A.D. 322); *PAntin.* 32 V.2 (A.D. 339)

ἀδνουτατίωνος *adnotatio* *PMon.* 14.85 (A.D. 594)

ἀδνοῦμεν (for ἀδνούμιον) *ad nomen* *PApoll.* 27.3 (A.D. 713)

ἀδνουμεύων *PRossGeorg.* iv, 6.12 (A.D. 710)

but ἀδνοτατίονος *SB* 9763.34 (A.D. 457-74)

Note. The Semitic name *Ya'akob* is found in various spellings. The *o* is rendered by ου, ω, or ο in Ἰάκουβος, etc., and also by υ in the derivative Ἰακύβιος, but only by ω (or ο) in the indeclinable Ἰακώβ.

Ἰάκουβος *OEdfou* 74.1 (A.D. 69-79); 71.1 (A.D. 74); 72.1 (A.D. 75); sim. 73.1 (A.D. 93); etc.; Ἰακούβου *BGU* 715 ii.11 (A.D. 101/2)
Ἰακώβου *OEdfou* 477.2 (7th cent.); Ἰακώβῳ *PLond.* 1722.6 (A.D. 573)
Ἰακόβου *OEdfou* 15.1 (A.D. 69); *PPrinc.* 42.21,32 abbrev. (A.D. 93); cf. *SB* 3942, inscr. (n.d.); Ἰάκοβος *OEdfou* 149.1 (A.D. 104)
Ἰακωβίου *PStrassb.* 310.8 (late 4th cent.)
Ἰακυβίου *PAmh.* 155.10 (5th cent.); *PFlor.* 78.22 (A.D. 330-40: *BL* iii, 56); *PFlor.* 297.78, etc. (6th cent.); *PMichael.* 42 A.31,41; B.22,26 (A.D. 566); *PMon.* 7.9, etc. (A.D. 583)
Ἰακύβιον *PMichael.* 52.11 (6th cent.)
Ἰακώβ *POxy.* 2124.4,20 (A.D. 316); *PPrinc.* 103.1 (5th cent.); *PAntin.* 103.4,18 (A.D. 475); *PPrinc.* 96.10, etc. (2nd half 6th cent.); etc.
Ἰακόβ *PHamb.* 68.46 (A.D. 550+)

b) ω is the normal transciption of *ō*, with ο as an occasional variant representing the interchange of ω and ο;[1] exceptions are found in *votum* and *indictio*.

λώδικες *lodex POxy.* 1153.20 (1st cent.); sim. *POxy.* 2230.5,11 part. rest. (A.D. 119+); *PHamb.* 10.33 (2nd cent.); etc.
λωδίκιν *BGU* 93.24: *BL* i, 18 (2nd/3rd cent.); *POxy.* 114.9 (2nd/3rd cent.); sim. *PRyl.* 606.34-35 (late 3rd cent.); etc.
λωδίκιον *PPrinc.* 95.14 (4th cent. ?); sim. *SB* 7033.38 (A.D. 481); etc.
but λοδίκια *SB* 7572.5-6 (prob. 1st half 2nd cent.); sim. *PCairMasp.* 139 v R.23 (6th cent.)
πωμάριον *pomarium PRyl.* 157.5 (A.D. 135); *POxy.* 707.19 part. rest., sim. 26 (ca. A.D. 136); *PFlor.* 50.12,46,88, etc. (A.D. 268); etc.
πωμαρίου *BGU* 712.5 (2nd cent.); *PSI* 1328.43 (A.D. 201); etc.
πωμαρίωι *POxy.* 1673.14 (2nd cent.); sim. *PHamb.* 23.18, sim. 24 (A.D. 569); 68.6,35 (A.D. 550+); etc.
but πομαρίῳ *PCairMasp.* 6 V.94 (ca. A.D. 567)
Ἀντωνείνῳ *Antoninus PCornell* 16.21 (A.D. 146/7); etc., passim
but Ἀντονίνου *PSI* 1234.10 (A.D. 150); *WO* 1065.4 part. rest. (A.D. 152 ?); *BGU* 348.9 (A.D. 156)
Ἀντονῖνος *PLond.* 1716.14 part. rest. (A.D. 570 ?)
πρα<ι>τωρί[ῳ *praetorium BGU* 288.14-15: *BL* i, 36 (A.D. 138-61)
πραιτωρίου *PPar.* 69 = *WChr.* 41 iii.13 (A.D. 232); *PSI* 1444.8 (3rd cent.); *PFlor.* 350.2 (3rd cent.); *POxy.* 2110.12 (A.D. 370); etc.
but πραιτορίου *PStrassb.* 142 = *SB* 8024.2 part. rest. (A.D. 391); *PRossGeorg.* v, 60 R.1 (late 4th cent.); sim. *SB* 972.2, inscr. (Rom.)
ἀννῶναν *annona PSI* 683.12 (A.D. 199)

[1] See below, pp. 275-7.

ἀννωνῶν *PCairIsidor.* 104.14,21 (A.D. 296); *CPR* 44.5 (4th cent.); *PSI* 1074.2 (A.D. 400); *StudPal.* viii, 999.1 (5th cent.); etc.
but ἀννόνης *PThead.* 32.5 (A.D. 308); ἀννονῶν *BGU* 519.15 (4th cent.); sim. *PLond.* 1760.1 (7th cent.); ἀννόνας *SB* 5748.5 (Xtn.)
ἀμικτωρίου *amictorium* *POxy.* 1535 V.8-9 (3rd cent.)
ἀμικτῶρι *PMeyer* 22.10: *BL* i, 309 (3rd/4th cent.); etc.
but ἀμικτόριον *SB* 9238.17 (A.D. 198-211)
δωνατίου *donatio* *PBeattyPanop.* 2.162, etc. (A.D. 300)
δωνατίουον *donativum* *POxy.* 1047.4 (4th cent.)
πρωδήκτορι *protector* *POxy.* 43 R ii.7; sim. iv.18,20 (A.D. 295); πρωτ- *PFlor.* 362.8 (4th cent.)
πρωτήκ̣τ̣ορ[ος] *PAmh.* 137.2 (A.D. 288/9)
πρ]ωτήκτορας *POxy.* 1253.4, sim. 14,17 (4th cent.)
πρωτηκτόρων *POxy.* 1134.3 (A.D. 421)
but προτήκτορι *PAberd.* 21.9-10 (3rd/4th cent.)
προτηκτόρων *PPrinc.* 119.1 (early 4th cent.); *SB* 6662.1 (4th cent.)
ἀποπροτ̣ηκτώρων *PLond.* 412 = *PAbinn.* 55.1 (A.D. 351)
β̣ότων *votum* *PCairMasp.* 57 i.32 (A.D. 554-9?)
ἰνδικτίονος *PMich.* 573.6 part. rest. (A.D. 316); *PSI* 1232.10 (4th cent.); 1108.13 (A.D. 381); etc.
ἰνδικτίωνος *PLond.* 1245 (iii, 228).8-9 (A.D. 357); *OStrassb.* 456.2 (prob. 4th/5th cent.); *PLond.* 1347.6 (A.D. 710); etc.

4) ου fluctuates with ο in transcribing *ŏ* in some proper nouns, but the normal transcription of *ŏ* is ο.

a) Words in which ου fluctuates with ο in transcribing *ŏ*:

Βουλούσιος *Volusius* *BGU* 657 ii.9 (2nd cent.)
cf. Οὐλούζιος *SB* 3565.1 (A.D. 95/96)
but Βολουσσίῳ, Βολούσσιος *BGU* 709.4,20: *BL* i, 61 (A.D. 138-61)
Βολύσσιος *BGU* 326 = *MChr.* 316 ii.13 (A.D. 194)
Βουκοντίων *Vocontiorum* *BGU* 114 = *MChr.* 372 i.17 (2nd cent.); *BGU* 4.10-11 (2nd/3rd cent.); etc.
but cf. Οὐοκοντίων *SB* 4280.3, inscr. (A.D. 165)
κουηεμπτίωνα *coemptio* *BGU* 1210 (33).93 (mid 2nd cent.)

b) Words in which ο is the normal transcription of *ŏ*, with ω as an occasional orthographic variant:

ἀβόλλην *abolla* *POxy.* 1153.18 (1st cent.); *POslo* 150.17 (1st cent.); *BGU* 814.8 (3rd cent.); *StudPal.* xx, 46 R.20 (2nd/3rd cent.); etc.
κολλήγας *collega* *PMich.* 466.45 (A.D. 107)
κολλήγαις *POxy.* 123.14 (3rd/4th cent.)
κολήγα (for κολλήγαν) *POxy.* 1253.17 (4th cent.); τοῦ κολλήγα *PLips.* 40 iii.18 (late 4th/early 5th cent.)
Ὀκτωβρίων *October* *PLond.* 1178 = *WChr.* 156.48-49 (A.D. 194); *POxy.* 2348.54 (A.D. 224); *POxy.* 1201.20 (A.D. 258); etc.

νοταρίῳ *notarius* *POslo* 183.8 (3rd cent.); *POxy.* 940.7 (5th cent.)
νοτάριος *PLond.* 416 = *PAbinn.* 17.4 (ca. A.D. 346)
νοταρίοις *PLond.* 1380 = *WChr.* 285.6 (A.D. 710-11); etc.
ἠβο[κᾶτ]ος *evocatus* *POxy.* 33 = *WChr.* 20 iii.11-12 (late 2nd cent.)
ἠβωκατῶρες *PRossGeorg.* iii, 1.7 (A.D. 270: *BL* iii, 156)
πρεπόσιτον *praepositus* *POxy.* 43 R, ii.23, etc. (A.D. 295)
πραιποσίτου *POxy.* 900 = *WChr.* 437.5 (A.D. 322); *StudPal.* xx, 75 i.28,30 (3rd/4th cent.); etc.
ἀποπραιποσίτου *PRossGeorg.* iii, 36.24 (A.D. 537); etc.
μοδίους *modius* *PRyl.* 692.7 (late 3rd cent.); *OStrassb.* 457.4,5; 512.5, etc. (4th/5th cent.); *StudPal.* viii, 1192.2 (5th cent.); etc.
κόμ(ες) *comes* *POxy.* 994 descr. (A.D. 499); sim. *StudPal.* x, 103.6,12 (4th/5th cent.); *POxy.* 1836.6 (5th/6th cent.); 1908.11 (6th/7th cent.); etc.
δομεστικῶν *domesticus* *SB* 5273 = *StudPal.* xx, 128.2 (A.D. 487); *POxy.* 1982.4 (A.D. 497); *PRossGeorg.* iii, 32.2 (A.D. 504); etc.
βόνῃ *bonus* *PHamb.* 68.25, etc. (A.D. 550+)

5) ου is sometimes used to transcribe the semi-vowel *u* in *qu-*.

a) The name *Quintus* is variously transcribed Κο-, Κου-, Κυ-, with the Κο- spellings tending to be earlier and the Κυ- spellings later:

Κοίντος ... Κοίντου *BGU* 1114.3-5, etc. (5 B.C.); *Archiv* v, p. 380, #41.1 (A.D. 15); cf. *SB* 982.5,6, inscr. (4 B.C.)
Κοίντος *BGU* 843.13 (1st/2nd cent.); *BGU* 1891.436, etc. (A.D. 134); *PPar.* 17.18 (A.D. 154); *POxy.* 1541.5 (A.D. 192); etc.
Κοίντου, Κοίντωι *POxy.* 1188.8,18 (A.D. 13); sim. *PPrinc.* 23.1 (A.D. 13); *PSI* 1109.15 (A.D. 93/94); *PSI* 738.10,14 (1st hand), with Κουίντος 25 (2nd hand) (A.D. 100); *OStrassb.*358.2 (A.D. 130); etc.
Κοίντω[ι] *PSI* 1356.1 (1st cent.); *PJand.* 153.8 abbrev. (4th cent.)
Κουίντος *OTaitPetr.* 273.1 part. rest. (A.D. 46); sim. *PSI* 1063.36 (A.D. 117); *SB* 9254.9 (2nd cent.); *SB* 4435.17; 4438.2; 4439.19, etc., with Κυίντου 4436.19; 4437 B.2; 4440.20; etc. (A.D. 250); etc.
Κυίντος *PLond.* 191 (ii, 264-5).21 (A.D. 103-17); *POxy.* 1541.5 (A.D. 192)
Κυίντου *PSI* 218.7; *PLBat.* ii, 6.1,19; *PRyl.* 112 a.14; *OTait* 1630.2; 1632.2; *PHamb.* 61 b.12 (all A.D. 250); etc.
Κυίντῳ *PMich.* 422.1 (A.D. 197); 425.8 (A.D. 198); *SB* 9340.1 (A.D. 198)

b) *Quintianus* shows similar variant spellings:

Κυιντιανοῦ *PSI* 1236.2 (A.D. 128); *POxy.* 486 = *MChr.* 59.20, sim. 8 (A.D. 131)
Κουιντιανοῦ *BGU* 15 i = *WChr.* 393.1, with Κοιντιανός 16 (same hand) (A.D. 194)
cf. Κυντιανοῦ *PSI* 687.5 (1st/2nd cent.); *PDura* 126.11 (A.D. 235)

c) *Quintillianus* appears as Κουιντιλλιανῷ in *PGrenf.* ii, 62.1 (A.D. 211)

d) *Aquila* appears only rarely in Ἀκουλ-; the normal spelling is Ἀκυλ-, never Ἀκοιλ-:

Ἀκουίλα (gen.) *PStrassb.* 79.4 (16/15 B.C.)
Ἀκύλα *BGU* 660 i.16 (2nd cent.); *BGU* 71.21 (A.D. 189); etc.
Ἀκύλας *PMich.* 554.2, etc. (A.D. 81-96); *BGU* 326 = *MChr.* 316 i.19 (A.D. 194); etc.

e) ου is also used in the transcription of *quadrarius* and *sesquiplicarius*:

κουαδραρίου *PCairIsidor.* 73.2; sim. *SB* 8991 = 71.8; 131.2 (A.D. 314); *PStrassb.* 129 = *SB* 7685.5 & duplic. 149 = *SB* 8753.5 (A.D. 331)
κουαδράριος *BGU* 21 i.5; *PCairGoodsp.* 12 = *WChr.* 253 i.6 (A.D. 340)
σησκουπλικᾶρις *PHamb.* 39 C ii.19 (A.D. 179); -ιος *BGU* 623.4 (2nd/3rd cent.)
σησκουπλικαρίου *BGU* 614.11-12 (A.D. 217); *PFlor.* 278 ii.9 (ca. A.D. 248); sim. *SB* 9202.3 (1st half 3rd cent.)

f) The following names and words show only κυ(ι)-:

Κυιήτου *Quietus PStrassb.* 6.29 (A.D. 255-61); cf. *POxy.* 1476.1 (A.D. 260)
Κυήτου *PGrenf.* i, 50.2 (A.D. 260); *POxy.* 1254.12,29 (A.D. 260); *PFlor.* 273.29 (A.D. 260); *SB* 8821.2 (ca. A.D. 260); etc.
Κυήτῳ *POxy.* 2710.8 (A.D. 261)
Κυϊητιανοῦ *Quietianus StudPal.* v, 127 = xx, 68 I R xvii.4-5 (3rd cent.)
κυντανῶν *quintanus PRossGeorg.* iii, 10.3 & V (4th/5th cent.)
κυτανῶν *StudPal.* xiv, 13.12 (ca. A.D. 400)
κυαίστ(ωρ) *quaestor PFlor.* 292.1; 293.1 (6th cent.)
κυεσσωνάρ(ιοι) *quaestionarius POxy.* 2050.2 (6th cent.); possibly also κεσσωπαρίοις (for -ναρίοις?) *SB* 2253.5 (Byz.)

6. αυ and ευ.[1]

αυ and ευ are frequently written simply α and ε. On the other hand, αυ and ευ are sometimes expanded to αου and εου, rarely to αυου and ευου. There is also evidence for a rare interchange of αυ and ευ with αβ and εβ. These phenomena indicate that the second element of the classical diphthongs /au/ and /eu/ shifted to a consonant, resulting in /aβ/ and /εβ/.

a. αυ and ευ written α and ε.

1) αυ > α.

This occurs most frequently in forms of αὐτός and in Latin names.

[1] Schwyzer i, 197-9, 346-8; Lejeune, § 218; Buck, *GD*, § 32-33, 35-36; *MS*, 61-62; Schweizer, 82-84; Nachmanson, 59-61; Hauser, 39-40; Mayser i², 1, 92-95; Crönert, 126-9; *BDF*, § 9, 30.4.

a) In forms of αὐτός (intensive and personal):[1]

ἀτοῦ *SB* 7032 = *PMich.* 187.38, corr. also 38 (A.D. 75); *PJand.* 9.15 (2nd cent.); *PWürzb.* 9.48 (A.D. 161-9); *PStrassb.* 201.30 (A.D. 162); *PMich.* 510.36 (2nd/3rd cent.); *PMich.* 596.15 (A.D. 328/43); *PGen.* 55 = *PAbinn.* 30.20-21 (ca. A.D. 346); *PSI* 884.2,3 (A.D. 391); *PHeid.* 246 b V.3 (5th/6th cent.); *PJand.* 45.3 (6th/7th cent.); cf. *SB* 4324.21, mag. (n.d.)

ἀτῶι *PTebt.* 297.19 (ca. A.D. 123); sim. *SB* 3939.2 (n.d.)

cf. ἀτõ *PColt* 161.5 (7th cent.)

ἀτόν *SB* 9127.6, with αὐτοῦ 15,16 (2nd cent.); *StudPal.* viii, 1268 V.1, corr. 2,3 (6th cent.)

ἀτός (for αὐτῷ) *StudPal.* iii, 179.2 (6th cent.)

ἀτῆς *BGU* 1049.11, corr. elsewh. (A.D. 342); cf. *PGM* 36.83 (4th cent.)

ἀτῶν *PRyl.* 95.12 (A.D. 71/72); *SB* 8027.14 (2nd/3rd cent.); *BGU* 13 = *MChr.* 265.22 (A.D. 289); sim. *BGU* 841.3 (Byz.)

cf. Ἀτοκράτορος (for Αὐτοκράτορος) *CPR* 198.5 (A.D. 139); *PLBat.* vi, 31.10 (A.D. 144)

b) In other words.

i. Before a vowel:

ἀπολάοντας (for ἀπολαύοντας) *PLond.* 1912.94 (A.D. 41)

ἀναπάομαι (for ἀναπαύομαι) *SB* 4317.11, with ταῦτα ἐν ἐμαυτῷ 16 (ca. A.D. 200)

ii. Before a consonant:

ἐ̣λάνοντας̣ (for ἐλαύνοντας) *PMich.* 229.15-16 (A.D. 48)

ἀλῶν (for αὐλῶν) *SB* 7031 = *PMich.* 186.33, with ἐδοκῶι for εὐδοκῶι 35 (A.D. 72)

ἀλῆς (for αὐλῆς) *CPR* 198.17, with Ἀτοκράτορος 5 (A.D. 139)

ἀ]ναπ̣άσομεν (for ἀναπαύσομεν) *PMichael.* 13.18 (A.D. 160/1: *BL* iv, 50)

θησαρο[ῦ] (for θησαυροῦ) *PLond.* 920 (iii, 172-3).15 (A.D. 176)

θησαρῷ *OMich.* 374.2 (late 3rd cent.)

ναβίου (for ναυβίου) *BGU* 819.3 (A.D. 202/3)

νάλ(ου) (for ναύλου) *StudPal.* iii, 168.2 (5th cent.); sim. *PLond.* 995 (iii, 248-9).5 (7th cent.); *PLond.* 996 (iii, 248).5 (7th cent.)

cf. πάσω, πᾶσιν (for παύσω, παῦσιν) *PGM* 9.12,13 (4th/5th cent.)

c) In the transcription of Latin names, reflecting Latin phonological developments:[2]

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[1] Similar spellings are found in Att. *Defix. tab.* (Schwyzer, *Vulg.*, 258; *MS*, 155) and in the Ptol. papp. from the mid 3rd cent. B.C. on (Mayser i²,1, 92-93). Schwyzer i, 199, explains them as arising in unstressed position within the sentence. See further Schweizer, 91, fn. 1; Jannaris, § 542-3.

[2] Cf. Eckinger, 12-13, for sim. exx. from later inscrr. These spellings reflect Lat. *Agustus*,

Κλαδοῦ (for Κλαυδίου) *PRyl.* 127.26 (A.D. 29)
  Κρατίου *BGU* 713.42 (A.D. 41/42)
Φάστου (for Φαύστου) *BGU* 832.32 (A.D. 113)
Ἀρήλιος (for Αὐρήλιος) *PCairIsidor.* 104.26 (A.D. 296); *SB* 7676 = *PCairIsidor.* 81.34, with ἀτοῦ for αὐτοῦ also 34 (A.D. 297); *SB* 4481.24, corr. 26 (A.D. 486)
Ἀγούστων (for Αὐγούστων) *PGrenf.* ii, 75.19, sim. 20-21 (A.D. 308: *BL* i, 191); *PThead.* 22.22 (A.D. 342); *BGU* 1049.1 part. rest. (A.D. 342); *PCairGoodsp.* 14.12 (A.D. 343); *WO* 1309.3: *BL* ii, 1, 102 (A.D. 346); *PAmh.* 140.11 (A.D. 349); sim. *PWürzb.* 16.6-7 (A.D. 349); *POxy.* 1880.2,15 (A.D. 427); etc.
  Ἄγουστοι *POxy.* 41 = *WChr.* 45.3,11,20,30 (ca. A.D. 300)
  Ἀγούστου *PGen.* 48 = *PAbinn.* 60.28,29 (A.D. 346); sim. *PLond.* 246 = *PAbinn.* 61.13, with Ἀούστου 14 (A.D. 346); *POxy.* 1116 = *WChr.* 403.10 (A.D. 363); *BGU* 940.25 (A.D. 398); *SB* 9561.4 (A.D. 590); *PLBat.* i, 10.3 part. rest. (A.D. 591-2); *PRossGeorg.* v, 33.6 (A.D. 594); etc.
  ἀγουσταλίου *PRossGeorg.* iii, 10.2,31, sim. 22 (4th/5th cent.); sim. *PLond.* 1675.8 (A.D. 566-73)

2) ευ > ε.

a) Before a vowel:

ἐπι]τηδέω̣ν̣ (for ἐπιτηδεύων) *PSI* 1323.7 (A.D. 147/8)
σκέων̣ (for σκευών) *PPrinc.* 163.8 (2nd cent.)
  συ̣ν̣σκεαζόμενος (for -σκευαζόμενος) *SB* 10476.10, sim. 13 (5th/6th cent.)
  σκέως (for σκεύους) *PBaden* 95.135 (7th cent.)
ἁγνέουσι (for ἁγνεύουσι) *BGU* 1 = *WChr.* 92 ii.17,20 (2nd/3rd cent.)
προσαγορέω (for -αγορεύω) *PFouad* 81.17-18 (4th cent.); *PGiss.* 54 = *WChr.* 420.19,22 (4th/5th cent.)
νεούσ̣[η]ς̣ (for νευούσης) *PLBat.* xvi, 8.17, sim. 20 (A.D. 561)
χηρέουσα (for χηρεύουσα) *PCairMasp.* 9 R.12 (6th cent.); 309.9 (A.D. 569); *PMich.* 607.9 (A.D. 569); *PMon.* 10.5; sim. 11.83: *BL* i, 310; poss. also V.1 (A.D. 586); *PFlor.* 300.5 (A.D. 597); *PLond.* 1733.6 (A.D. 594)

b) Before a consonant:

δετέρου, ἑρησιλογίας (for δευτέρου, εὑρησιλογίας) *PRyl.* 600.7,14 (8 B.C.)
  δετέρου *SB* 9427.5 (A.D. 162)
λεκαί (for λευκαί) *PLond.* 890 (iii, 167-8).6 (6 B.C.)
  λεκόν (for λευκόν) *PFuadCrawford* 8.16, corr. 17, sim. 19 (2nd cent. ?)

Cladius, etc. (Schwyzer i, 198; Leumann-Hofmann, 80; cf. Italian *Agosto*, French *août*). See further Meinersmann, 114; Schweizer, 82; Nachmanson, 61; *BDF* § 41.1.

ἐτογῶ (for εὐδοκῶ) *PMich.* 243.24 (A.D. 14-37)
ἐδοκῶι *SB* 7031 = *PMich.* 186.35, with ἀλῶν for αὐλῶν 33 (A.D. 72)
ἐδωκῶ *POxy.* 2586.57 (A.D. 253)
ἐχαριστῖ (for εὐχαριστεῖ) *BGU* 843.9 (1st/2nd cent.)
ἐθύ[ν]ονται (for εὐθύνονται) *BGU* 1210 (99).220 (mid 2nd cent.)
κεκοσμητεκότων (for κεκοσμητευκότων) *BGU* 118 i.5 (A.D. 189)
ἐτυχῶς (for εὐτυχῶς) *PNYU* 20.17, corr. 7,16 (A.D. 302)
ἐτυχοῦς (for εὐτυχοῦς) *PMichael.* 126.4 (A.D. 538)
βουλετῆς (for βουλευτοῦ) PLips. 34 V.5 (ca. A.D. 375)
ὑπεγορέσαμεν (for ὑπηγορεύσαμεν) *PMichael.* 45.35 (A.D. 540)
ἀσάλετων (for ἀσάλευτον) *POxy.* 2283.12 (A.D. 586)
ἐμφυτέματος (for ἐμφυτεύματος) *PMerton* 47.3 (late 6th/7th cent.)
προσέφεγον (for προσέφευγον) *PLond.* 1343.4 (A.D. 709)

This evidence for the omission of the -υ indicates either the loss of the second element of the /au/ and /eu/ diphthongs or its shift to a sound which was not normally expressed in writing. Evidence below for the expansion of αυ and ευ to αου and εου and further to αυου and ευου, sometimes in the same positions and even in the same words as the omission of -υ is attested, indicates that the second element was not entirely lost. Evidence for the interchange of αου with αυ and αβ and of εου with ευ and εβ indicates that the second element shifted through [w] eventually to /β/.

b. The converse writing of αυ for α and of ευ for ε is rare and usually the result of anticipation or repetition of another υ in the word or some other orthographic factor.

1) α > αυ:

καθαύπερ (for καθάπερ) *SB* 5244.12 (8 B.C.)
αὐνυπερθέτως (for ἀν-) *SB* 7197.9 (A.D. 170)
αὐργρίου (for ἀργυρίου) *PTebt.* 397 = *MChr.* 321.24, corr. also 24 (A.D. 198); sim. *CPR* 3.8 (mid 3rd cent.: *BL* i, 111)
συνναύοις (for συννάοις) *PSI* 1415.8 (2nd/3rd cent.)
ἐπισκευαυσθῆναι (for -σκευασθῆναι) *PBeattyPanop.* 1.181 (A.D. 298)
ῥαυβδίν (for ῥαβδίον) *PSI* 972.7 (4th cent.?)
αὔξων, αὔξονος, αὔξονα (for ἀξ-) *POxy.* 137.15, etc., five times, two diff. hands (A.D. 584)
αὔξονας *PHarris* 112.8 (5th cent.)
cf. δραύχοντα (for δράκοντα) *PJand.* 6.15, amulet (5th/6th cent.)

2) ε > ευ:

εὐλευθέραν (for ἐλευθέραν) *POxy.* 722 = *MChr.* 358.6 (A.D. 91/107)
cf. ἀνε⟦υ⟧λευθέρων *PSI* 41.21 (4th cent.)
Ἡρακλεύου (for Ἡρακλέου) *PMich.* 225.1638, corr. elsewh. (A.D. 173-4)
ὀξεύọ(ς) (for ὀξέως) *POxy.* 2032.55 (6th cent.)

c. αυ and ευ appear rarely as υ. These are probably scribal errors.

1) αυ > υ:

κύσεως (for καύσεως) *POxy.* 2272.22, corr. 21 (2nd cent.)

2) ευ > υ:

ἀναπλῦσε (for -πλεῦσαι) *PSI* 967.12 (1st/2nd cent.)
κελυσθείσης (for κελευσθείσης) *POxy.* 916 = *WChr.* 185.7-8 (A.D. 198)
ὐχομένῃ (for εὐχομένῃ) *PTebt.* 413.3, with ἀτῆς for αὐτῆς 13 (2nd/3rd cent.)
ἀρδύειν (for ἀρδεύειν) *PRyl.* 653.27 (A.D. 321)
ὐπόρος (for εὐπόρους) *PLBat.* xi, 2 i.8 (A.D. 339)
cf. also μυ (for μευ) *PFay.* 141, text of *Il.* i, 273 (1st/2nd cent.)

d. αυ and ευ are sometimes expanded to αου and εου and further to αυου and ευου in the same words in which the omission of -υ occurred.

1) αυ > αου.

a) In Greek words:

αοὐτοῦ (pers. pron. and always after παρ') *SB* 9109.2 twice, with αὐτοῦ intensive 4, etc. (A.D. 31); *PMich.* 259.14,15, with αὐτοῦ pers. pron. 5, etc. (A.D. 33); 260-1.13,14, with αὐτῷ pers. pron. 5-6, etc. (A.D. 35); 263.16 twice, with αὐτῷ pers. pron. 6, intensive 15, etc. (A.D. 35/36); 264-5.12, with αὐτήν pers. pron. 14, etc. (A.D. 37); 340.8, with αὐτῶι pers. pron. 2, etc. (A.D. 45/46); 123 V V.13 (A.D. 45-47); etc.
σπείρης τῆς αοὐτῆς (adj.) *PSI* 1063.38 (A.D. 117)
θησαουρῷ (for θησαυρῷ) *BGU* 2026.6 (2nd cent.)
ταοῦτα (for ταῦτα) *PAlex.* 26.19 (2nd/3rd cent.)
ναούλου (for ναύλου) *SB* 4821.10 (A.D. 464)

b) In the transcription of Latin names:

Αοὐγο[ύσ]τας (for Αὐγούστας) *BGU* 140 = *MChr.* 373.8 (A.D. 119)
Κλαουδίο[υ] (for Κλαυδίου) *SB* 4122.9, with Φλαουβίου for Φλαουίου 2, Φλαυβίας 5 (A.D. 120)
Αοὐρηλίου (for Αὐρηλίου) *PSI* 1227.8 (A.D. 188)
cf. Φαουστίνου (for Φαυστίνου) *SB* 4588.2, inscr. (n.d.)

2) ευ > εου.

This occurs most frequently in accented syllables before σ/ς, especially in occupational designations in -εύς.[1]

[1] Cf. Corinth. Ἀχιλλεούς, Ion. Εὐρυσθένεους (Schwyzer i, 197), Asia Minor ἀρχιερεούς and γονεοῦσι (Schweizer, 83-84, Anm. 3) and κατεσκέουασεν (Schweizer, *ibid.*; Nachmanson, 60 [-61], Anm. 1).

ὑπογραφεούς (for -εύς) *PMich.* 311.24-25 (A.D. 34)
ἑρμηνεούς (for -εύς) *PMich.* 123 R XII.8, with βαφεύς 5 (A.D. 45-47)
κεραμεούς, βαφεούς (for -εύς) *PLond.* 387 (ii, 331-2).12,13, with -χοεύς 17 (6th/7th cent. ?)
ἁ[λ]ιεοῦσι, ἀμφιβολεοῦσι, εοὐωρκοῦσι, εοῦ (for ἁλιεῦσι, ἀμφιβολεῦσι, εὐορκοῦσι, εὖ) *PSI* 901.13-15, cf. 22 below under ευ > ευου (A.D. 46)[1]
σκεούει (for σκεύη) *PMich.* 343.5 (A.D. 54/55)
ἐσκεο[υ]ασμένοις (for ἐσκευασμένοις) *PCairMasp.* 6 V.45-46, sim. 59,86 (6th cent.)
cf. also 'Ορσεοῦν (for 'Ορσεῦν) *PMich.* 121 V X.12 (A.D. 42)
perh. also 'Αλθεαιούς (for 'Αλθεύς [demotic] with ε = αι) *POxy.* 2349. 6,20,21,29 (A.D. 70); *BGU* 469.2 (A.D. 159/60)

3) αυ > αυου:

ταυοῦτα *BGU* 615.7 (2nd cent.)
αυοὐτά, αυοὐτῇ, αυοὐτῶν *PRein.* 118.8,11,14-15 (late 3rd cent.)

4) ευ > ευου:

σαγηνευοῦσι, ἀμφιβολευοῦσι (for -εῦσι) *PSI* 901.22, cf. 13-15 above under ευ > εου (A.D. 46)
δευουδέρου (for δευτέρου) *CPR* 198.5 (A.D. 139)
δουλευούετε (for δουλεύετε) *SB* 6263.20 (Rom.)

These expanded spellings indicate the retention of the second element of the /au/ and /eu/ diphthongs. In light of the evidence for the omission of the -υ in the same words in comparable documents from the same time, the second element seems to have shifted to a sound not normally represented in writing. The following evidence for the interchange of αου with αυ and αβ and of εου with ευ and εβ indicates that the sound shifted through [w] eventually to /β/.

e. Interchanges of αου with αυ and αβ and of εου with ευ and εβ.

1) Latin consonantal *u* (*v*) is usually transcribed by Greek ου after α and ε as elsewhere. But the resultant αου/εου is frequently simplified to αυ/ευ, sometimes expanded to αυου/ευου, or replaced by αβ (αουβ)/εβ, as well as sporadically by other spellings. This occurs especially in transcriptions of the names *Flavius* and *Severus* and the word *breve* (*brevium*).

a) Latin *av*/*ev* transcribed by αου/εου:

Φλαουίου *PLond.* 297 b (ii, 110-11).4 (A.D. 119); *BGU* 459.9 (A.D. 131); *BGU* 288.19 (A.D. 138-61); *PLond.* 99 (i, 158-62).117 (4th cent.); etc.
Φλαουΐῳ *PLond.* 368 (ii, 76).2 (A.D. 179); *PRein.* 92.3 (A.D. 392); *PSI* 686.2 (6th cent. ?); etc.
Φλαουία *BGU* 1893.33,95 (A.D. 149); 1606.7 (A.D. 209); etc.

[1] See Kapsomenakis, 9-10, and cf. 11 (-13), fn. 1.

Φλαουίας *CPR* 18 = *StudPal.* xx, 4.2,31 (A.D. 124); *PHamb.* 70.16 (A.D. 144/5 +); etc.

Φλαουιανός *PLBat.* xi, 20.1 (4th cent.); -οῦ *PSI* 1447.6 (5th cent.)

Σεουήρου *POxy.* 237 vii.33,36 (A.D. 186); *BGU* 15 i = *WChr.* 393.3 (A.D. 194); *PSI* 462.6 (A.D. 314); etc.

Σεουῆρος *PSI Omaggio* 11.1 (3rd cent.)

Σε]ουῆρα *CPR* 46.2 (A.D. 214)

βρέουιον *PGen.* 64 = *PAbinn.* 67 R.1 (ca. A.D. 346); *PBaden* 54.1 (5th cent.); *SB* 9395.6 (6th/7th cent.); etc.

βρεουίῳ *PGissBibl.* 33.5 (6th cent.)

b) Latin *av/ev* transcribed by αυ/ευ:

Φλαυίου *PFay.* 53.3 (A.D. 110/11); *PMilVogl.* 25 ii.2 (A.D. 126/7); *PRyl.* 113.18-19 (A.D. 133); *PThead.* 1.1 (A.D. 306); *PStrassb.* 398.1 (A.D. 553); etc.

Φλαυίῳ *PSI* 690.6 (1st/2nd cent. ?); *PSI Omaggio* 12.1, sim. 21 (3rd cent.); *POxy.* 67 = *MChr.* 56.12, sim. 1 (A.D. 338); etc.

Φλαυίας *BGU* 567 i.24 (2nd cent.); *PTebt.* 402.1 (A.D. 172); *SB* 8086.6 (A.D. 268); etc.

Φλαΰία *PStrassb.* 132 = *SB* 8014.1,11,24, etc. (A.D. 262-7)

Φλαυϊανοῦ *PStrassb.* 205.5 (ca. A.D. 135); sim. *BGU* 568.5 (2nd cent.)

Σευῆρ[ον] *BGU* 665.5 (1st cent.)

Σευήρου *PFay.* 52.2 (A.D. 194); *PAmh.* 119.1 (A.D. 200); *BGU* 45. 23,25 (A.D. 203); *PSI* 713.2 (3rd cent.); *PThead.* 1.2 (A.D. 306); etc.

Σευήρᾳ *CPR* 45 = *StudPal.* xx, 21.1, with Σεουήρου 29 (A.D. 214)

βρέυιον *PGen.* 63 = *PAbinn.* 66.2 (ca. A.D. 346)

βρευίου *PThead.* 53.1 (4th cent.)

c) *av/ev* transcribed by αυου/ευου:

Φλαύουειος *PMich.* 599.2 (A.D. 177)

Φλαυουίου *PLond.* 405 = *PAbinn.* 11.9 (ca. A.D. 346)

Σευουήρου *PLips.* 10 = *MChr.* 189 ii.13 (A.D. 240)

d) For *av/ev* transcribed by αβ/εβ, see above, p. 69.

e) *av/ev* transcribed in other ways:

Φλαοίῳ *PStrassb.* 369 ii.1 (A.D. 170)

Φλαΐῳ *StudPal.* xx, 103.1 (A.D. 381)

Φλάειως *PLond.* 113(1) (i, 199-204).93 (6th cent.)

Συήρου *PLBat.* vi, 19.11 (A.D. 118)

Σεωήρου *PAberd.* 35.1 (A.D. 202/3)

2) For the occasional substitution of αβ/εβ for αυ/ευ and combinations, see above, pp. 69-70.

Spellings with αβ/εβ for α(ο)υ and ε(ο)υ are generally later, becoming most common in Byzantine times, when the spellings α(υ)ου and ε(υ)ου cease almost entirely. This chronological distribution reflects the gradually increased closure

of the second element of the sounds represented by αυ and ευ from /au eu/ to /aw εw/ to /aβ εβ/. This corresponds to the known historical development of the diphthongs represented by αυ and ευ from their original /au eu/ pronunciation to the /av εv/ or /af εf/ pronunciation they have in Modern Greek.[1] In terms of bilingual interference, the Coptic diphthongs represented by ⲁⲩ and ⲉⲩ, both arising frequently from contraction of ⲁⲟⲩ and ⲉⲟⲩ, represented a vocalic + consonantal element /aw εw/, and parallel orthographic variants in Coptic manuscripts and documents suggest that Greek αυ and ευ may have been identified with the corresponding Coptic diphthongs.[2]

Note. The name *Octavius* is usually transcribed with the *v* not represented:

'Οκταίωι *BGU* 1200.1 (2/1 B.C.)
'Οκτᾶις *OTait* 1004.3 (A.D. 149)
'Οκταίου *PLond.* 257 (ii, 19-28).274 (A.D. 94); *PRossGeorg.* iii, 1.24 (A.D. 270: *BL* iii, 156)
'Οκταείου *PCairIsidor.* 84.4 (A.D. 267); cf. *Archiv* ii, 431, #9.4, inscr. (A.D. 1-3)
cf. 'Οκτάει (gen.) *SB* 360.4, inscr. (ca. A.D. 1)
but 'Οκτάυιος *BGU* 581 = *MChr.* 354.14 (A.D. 133)
'Οκταυία *PHarris* 83.2 (A.D. 212 ?)
'Οκταυίῳ *PMerton* 91.1 (A.D. 316)
'Οκταουία *PHarris* 68.6 (A.D. 225)
'Οκτάουιος *SB* 7620.16 (mid 1st cent. or later); *MChr.* 372 v.13; sim. iv.17 (2nd cent.)
cf. 'Οκταουίου *SB* 984.3, inscr. (3rd cent.)

f. An interchange of αυ and ευ is sometimes found.[3]

1) ευ > αυ:

παραυρέσει (for παρευρέσι) *SB* 7032 = *PMich.* 187.25 (A.D. 75)
αὐρισκαμένου (for εὑρισκο-) *SB* 9593.23 (6th/7th cent.)

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[1] Evidence for the beg. of this development is found as early as 6th cent. B.C. Locr. ΝαϜπακτίων and Corinth. ΕϜϑετος (Schwyzer i, 197, where a distinction is made betw. the [w] indicated by these data and the later fricative [v] indicated in late 3rd cent. B.C. Boeot. inscrr. by such spellings as ἕυδομον (*ibid.*, 198) and in the Ptol. papp. by ῥάυδους, written three times by the same writer). In Att. inscrr., αυ is written α only once in ἀτός (*MS*, 155), but ευ is written ε several times before vowels and consonants from the 4th cent. B.C. on, and a fricative pronunciation of the second element of ευ is perh. indicated by the converse writing of ἐυφήβοισι for ἐφήβοισι ca. A.D. 120 (*MS*, 62). See further Schweizer, 82-84; Nachmanson, 59-61; Rüsch, 136-41; Mayser i², 1, 92-95; Dieterich, 78-81; Psaltes, 55-57, 124.

[2] Copt. ⲁⲩ and ⲉⲩ are occ. written simply ⲁ and ⲉ (Kahle, VIII, § 17, 31) and some fluctuation between ⲁⲩ and ⲁⲟⲩ and between ⲉⲩ and ⲉⲟⲩ (and ⲏⲩ and ⲏⲟⲩ) is observed (Kahle, VIII, § 60, 60A).

[3] For possible explanations, see Schwyzer i, 126, 198, 274.

κεκοσκιναυμένο[ν] (for -νευμένον) *PPrinc.* 147.25-26: *BASP* v, 12 (A.D. 87/88)
πραγματαυτοῦ (for -τευτοῦ) *BGU* 383.4 (2nd/3rd cent.)
κλαύγους (for γλεύκους) *PMich.* 608.9 (6th cent.); sim. *PFlor.* 65.8 (A.D. 570/1 ?)
cf. πνάματος (for πνεύματος) *SB* 5590.2 (A.D. 723: *BL* v, 96)

2) αυ > ευ:

ἀνευδούρκητα (for ἀναυτούργητα) *PTebt.* 372.29 (A.D. 141)
εὐτά (for αὐτά) *POslo* 161.17 (late 3rd cent.)
εὐτοῦ, εὐτόν (for αὐτοῦ, αὐτόν), etc. *PGen.* 56 = *PAbinn.* 37.8,21, etc., eight times (ca. A.D. 346)
cf. ἐτοῦ (for αὐτοῦ) *OTaitCamb.* 116.5 (8th cent.)
cf. ηὐτοῦ (for αὐτοῦ) *PLBat.* xi, 1 ii.14, with αὔτοι for ἤτοι ii.22 (A.D. 338)

Note. ἐραυν- is the normal spelling in the papyri of the Roman and Byzantine periods in contrast with the Ptolemaic periods when ἐρευν- was used exclusively.[1]

ἠραύνηται *POxy.* 294.9, sim. 10 (A.D. 22)
ἐραυνᾶν *POxy.* 280.30 (A.D. 180)
ἐρα[υ]νῆσαι *PLond.* 1343.35: *BL* i, 300 (A.D. 709)
ἐραυνητικ(οῦ) *POxy.* 1650.6 (late 1st/early 2nd cent.); sim. *SB* 7365.2, etc. (A.D. 114); *PMerton* 15.28,33 (A.D. 114)
ἐραυνητῇ *PJand.* 150 ii.14 (A.D. 225); *POxy.* 1651.18 (3rd cent.)
ἐραυνηταῖς *PFay.* 104.14, etc. (late 3rd cent.)
ἔραυναν *POxy.* 67 = *MChr.* 56.18 (A.D. 338); *PLond.* 1384.48 (A.D. 710 ?)
ἐραύνησιν *PFouad* 82.10 (4th/5th cent.); *PCairMasp.* 166.21 (A.D. 568)

g. αυ and ευ interchange sporadically with other symbols.

1) αυ > ο/ω:

πεπομένα (for πεπαυμένα) *PStrassb.* 334 b.9 (1st/2nd cent.)
κ]ολοκοπία (for καυλοκοπία) *PAlex.inv.* 38 (p. 41).9 (Byz.)
Κλωδίο(υ) (for Κλαυδίου) *OTait* 681.2 (A.D. 98); sim. 794.1 (A.D. 148)
Νωμαχίᾳ (for Ναυμαχίᾳ) *BGU* 9 iii.17 (prob. late 3rd cent.)

2) ο > αυ:

Αὔα[σεν (for Ὄασει) *POxy.* 2349.36, corr. 24,44 (A.D. 70)
Αὔασιν (for Ὄασιν) *SB* 9233.4 (2nd/3rd cent. ?)

3) η > αυ:

αὔτοι (for ἤτοι) *PLBat.* xi, 1 ii.22 (A.D. 338)

4) ευ > ο:

πορόεσθε (for πορεύεσθε) *SB* 8247.20 (1st cent.)

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1 Mayser i², 1, 95; cf. *BDF*, § 30.4.

VIII. THE QUALITY OF SIMPLE VOWELS

A. FRONT VOWELS[1]

The process of itacism, which resulted in the eventual identification of the sounds originally represented by ι, ει, η, ηι, οι, υ, and υι in /i/, was well advanced in Egypt by the beginning of the Roman period. ει and ι are alternate representations of /i/;[2] η and ηι are identified;[3] οι, υ, and υι all represent /y/.[4] Moreover, there is a very frequent interchange of η with ι and ει, indicating that η also represented /i/ at least in the speech of many writers. On the other hand, there is a frequent interchange of η with ε (and sometimes with its phonetic equivalent αι[5]) throughout the Roman and Byzantine periods, in similar documents and sometimes in identical phonetic conditions and even in the same words in which an interchange of η with ι or ει is found. There is also an occasional interchange of ε (αι) with ι and ει.

1. Interchange of η and ι (ει).

a. η × ι.

This interchange occurs very frequently in all phonetic conditions throughout the Roman and Byzantine periods.

1) η(ι) > ι.

a) In unaccented syllables.

i. In final position:

πάσι (for πάσῃ) *PMich.* 249.4; 250.6 (A.D. 18); 328.5 (A.D. 29); 280.6; 301-2.7; 305.24 (1st cent.); *BGU* 910 i.8 (A.D. 71: *BL* iii, 15); *SB* 9214.24 (A.D. 311); etc.

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[1] Schwyzer i, 180-1, 185-91, 338-42, 345-6, 349-50; Lejeune, § 223-4; Buck, *GD*, § 9-11, 14-21; *MS*, 18-21, 27, 40-48; Schweizer, 43-59; Nachmanson, 19-23, 24-27; 31-34, Hauser, 24-29; Rüsch, 25-29, 61-65; Mayser i², 1, 39-65; Crönert, 19, 25-26, 107-15; *BDF*, § 22, 24, 29.3,5, 30.2,3, 41.1; Psaltes, 13-20, 23-28, 109-17.

[2] See above, pp. 189-91.

[3] See above, pp. 183-6.

[4] See above, pp. 197-9, 202-7.

[5] For the identification of αι and ε, see above, pp. 192-3.

τῆι φερούσι (for -σῃ) *PRyl.* 148.11 (A.D. 40)
δεσπότι (for -τῃ) *PHermRees* 7.1 (4th cent.); 49.6 (6th cent.)
ἡ[γη]σαμένι (for -μένῃ) *PThead.* 19.10 (A.D. 316-20: *JJP* ii, 60)
παρẹτήσι (for παραιτήσῃ) *BGU* 1668.9 (early Rom.); cf. παραιτίσι (for -τήσῃ) *PGM* 70.11 (late 3rd/early 4th cent.)
ἔχι (for ἔχῃ) *BGU* 830.19 (1st cent.)
μα]ρτυρήσι (for -σῃ) *POxy.* 2275.9-10 (1st half 4th cent.)
ἐγράφι (for ἐγράφη) *POxy.* 2007.12 (early 6th cent.); 1998.5 (6th cent.); cf. *SB* 5020.4-5, inser. (Byz.); *PColt* 59.13 (A.D. 684?); etc.

ii. Initially and medially:

ἱμικολλίου, ἱμιοβέλ(ιον) (for ἡμι-) *PMich.* 123 R VII.39; sim. V II.4,10 (A.D. 45-47)
ἱμιαρτάβιον *PBouriant* 13.5 (A.D. 98)
μιχανήν (for μηχανήν) *SB* 9379 = *PMilVogl.* 69 A.89 (2nd cent.); *PGron.* 13.7 (5th/6th cent.); *SB* 4735.3 (Byz.)
σιμιαφόρῳ (for σημεια-) *SB* 9202.4 (1st half 3rd cent.)
σεσιμίọμạι *OMich.* 53.9 (4th cent.); sim. *StudPal.* viii, 1079.4 (6th/7th cent.)
λικύθιν (for ληκύθιον) *SB* 7244.10 (mid 3rd cent.)
ἡμερισείως (for ἡμερησίως) *POxy.* 1455.8 (A.D. 275)
κελεύσις (for -σῃς) *PBeattyPanop.* 1.165 (A.D. 298); *PLBat.* xi, 1 i.15; ii.14 (A.D. 338)
ὡμείλισα (for ὡμίλησα) *POxy.* 1588.8 (early 4th cent.)
μελισάτω (for μελησάτω) *PLips.* 38 = *MChr.* 97 i.14 (A.D. 390)
βοήθισον (for βοήθησον) *OEdfou* 476.2-3 (early 7th cent.)
ὁμογνισίου (for -γνησίου) *SB* 4821.7 (A.D. 464)
γνισίαν ἀδελφώτιταν (for -τητα) *PHermRees* 49.3 (6th cent.)
ἐκλισίας (for ἐκκλησίας) *PSI* 964.29 (6th cent.)
διμμωσίου (for δημοσίου) *POxy.* 1998.9 (6th cent.); sim. *PGrenf.* ii, 102 = *StudPal.* viii, 784.2 (7th cent.)
ἀπιλιώτι (for ἀπηλιώτῃ) *PMichael.* 39.6 (Byz.)
λιστάς (for ληστάς) *POxy.* 139.23 (A.D. 612); 1981.22 (A.D. 612 ?)
αὐλιτής (for αὐλητής) *StudPal.* x, 229.6 (7th/8th cent.)

b) In accented syllables.

i. In final position:

μί (for μή) *SB* 5109 = *PRyl.* 160d, i.7, with μέρι for μέρη 2 (A.D. 42); *PMich.* 478.40 (early 2nd cent.); *SB* 9683.7,14 (late 4th cent.); *PJand.* 128.16, corr. 22 (5th cent.); *POxy.* 1872.3 (late 5th/early 6th cent.); *SB* 9455.11 (early 6th cent.); *PColt* 55.5 (A.D. 682 ?); 59.11 (A.D. 684 ?); 70.5 (ca. A.D. 685 ?); cf. μιέ (for μή) *PLond.* 1273 (iii, 174).11 (A.D. 29); μιή *PAntin.* 42.31 (A.D. 542)
ἀρετῖ (for ἀρετῇ) *PPrinc.* 70.11 (2nd/3rd cent.)

τῖ (for τῇ) *POxy.* 1774.1 (early 4th cent.); sim. *POxy.* 1874.19,21 (6th cent.); cf. *PColt* 55.9 (A.D. 682 ?); 70.7 (ca. A.D. 685 ?)
ἠπιτῖ (for ἠπητῇ) *PMeyer* 22.4 (3rd/4th cent.)

ii. Initially and medially:

ἵμισυ (for ἥμισυ) *OMich.* 42.3 (1st cent.); sim. *POxy.* 986 descr., iii (A.D. 131/2)
λίμματ[ος] (for λήμματος) *SB* 7815.2 (1st cent.)
[τ]ιμῖς (for τιμῆς) *PGen.* 8.26 (A.D. 141); cf. *PColt* 89.21,32,35, etc. (late 6th/early 7th cent.)
τῆς ἀρχῖς (for ἀρχῆς) *SB* 9264 = *PMilVogl.* 71.17 (A.D. 161-80)
ẹρίσης (for αἱρήσης) *POxy.* 2230.7 (A.D. 119)
συνομολογίσω (for -ήσω) *SB* 8945.28 (late 3rd cent.)
ἐληπίθιν (for ἐλυπήθην) *POxy.* 1874.9 (6th cent.)
ποιῖσαι, ποιίσω (for ποιῆσαι, ποιήσω) *PFlor.* 279.12,21 (A.D. 514)
cf. ὁδιγῖσαι (for ὁδηγῆσαι) *PColt* 72.7 (A.D. 684 ?)
ἐφίκασιν (for ἐφήκασιν) *SB* 7696.34 (A.D. 250)
ἶκα (for ἧκα) *PNYU* 25.5 (4th cent.)
cf. καθῖκον (for καθῆκον) *PColt* 50.8 (early 7th cent.)
καμίλων (for καμήλων) *PLond.* 1210 = *PFlor.* 271**.14,17 (A.D. 264); sim. *PColt* 74.4 (ca. A.D. 685)
δῖλα (for δῆλα) *PJand.* 11.4 (4th cent. ?: *BL* i, 197)
βουληθῖς (for βουληθῆς) *PSAAthen.* 69.5 (5th cent.)
ἐπιτροπίν (for -τροπήν) *StudPal.* viii, 1126.7-8 (6th cent.)
cf. Αὐρίλιος (for Αὐρήλιος) *BGU* 286.3: *BL* i, 36 (A.D. 306)

See further *BGU* 103 = *WChr.* 134 (6th/7th cent.) with η > ι freq., e.g., δικασθῖνε for -ῆναι 2, ἀλλίλους for ἀλληλ- 4, ἀπαλλαγῖνε for -ῆναι 6, κτίματος for κτήμ- and ὑπερθῖ for -θῇ 7, Σερῖνος for Σερῆνος 11; also (ε)ι > η: καταξήωσον for -αξίωσον 2,5, ἐλθῆν for ἐλθεῖν 5; sim. *PColt* 57.8,12,14, etc. (A.D. 689).

2) ι > η.

a) In unaccented syllables:

ἠδιοτικῶν (for ἰδιο-) *PMich.* 256.8-9 (A.D. 29/30); *PSI* 908.9 (A.D. 42/43)
ἠδίου (for ἰδίου) *BGU* 830.6 (1st cent.); *POxy.* 2729.10-11 (4th cent.)
ἠδίοις (for ἰδίοις) *PLond.* 251 = *PAbinn.* 64.27,28 (ca. A.D. 346)
ἠδιόχηρον (for ἰδιόχειρον) *SB* 4755.30 (Byz.)
βασιληκή (for βασιλική) *PRyl.* 160c, i.6, corr. 16 (A.D. 32)
ψηλούς (for ψιλούς) *PMich.* 305.24 (1st cent.)
πρᾶσην (for πρᾶσιν) *PMich.* 280.5-6 (1st cent.); *PSI* 915.2, sim. 8 (1st cent.)
ἔκτησιν (for ἔκτισιν) *PStrassb.* 204.15 (A.D. 161/9)
κατεχώρησ(α) (for -χώρισα) *PLeit.* 5.38 (ca. A.D. 180)

ἄχρης (for ἄχρις) *BGU* 775.18 (3rd cent.: *BL* i, 65); *PLBat.* xi, 28.8, with κτήματη for -ματι 5, εὐτρεπίσθι for -θη 8,9 (4th/5th cent.: *BL* v, 63); sim. *POxy.* 1835.1 (late 5th/early 6th cent.)
ἡμάτια (for ἱμάτια) *SB* 7247 = *PMich.* 214.31 (A.D. 296)
ἥμησυ (for ἥμισυ) *PCairIsidor.* 50.32 (A.D. 310); *PHermRees* 42.4 (6th cent.); sim. *SB* 1966 (6th cent.)
της (for τις) *PMerton* 38.7 (mid 4th cent.)
δεξηάν (for δεξιάν) *BGU* 899.13, with ἐδεξάμιν for -μην 7, sim. 12 (4th cent. ?)
δηαγραφῇ (for διαγραφῆς) *PMerton* 95.2 (5th cent.)
ἀρχηυπερέτ(ου) (for ἀρχι-) *StudPal.* iii, 161 = xx, 201.3 (5th/6th cent.)
γνῶσης (for γνῶσις) *PGron.* 13.2, with μιχανήν 7 (5th/6th cent.); *PAntin.* 205.2 (7th cent.)
μηκρῶν (for μικρῶν) *StudPal.* iii, 302 = xx, 215.2 (6th cent.)
τημήν (for τιμήν) *BGU* 740.13 (Byz.)
μησ[θόν (for μισθόν) *SB* 4883.19 (Byz.); sim. 9153.33 (A.D. 596) μησθοῦ *PGot.* 67.1 (late Byz.); cf. μησθο[φόρου *SB* 5223.19 (n.d.)
χάρητι (for χάριτι) *PLond.* 1349 = *WChr.* 284.1, with ἐπιηκείας for ἐπιεικείας 8 (A.D. 710)

b) In accented syllables:

ἥσάσει (for ἴσασι) *BGU* 597.5 (A.D. 75)
χρήματος (for χρίματος) *PSI* 1030.12 (A.D. 109)
ἥνα (for ἵνα) *POxy.* 528.22 (2nd cent.); *POxy.* 1220.5, with εἵνα 13,19 (3rd cent.); *BGU* 948.19 (prob. 4th/5th cent.)
κομήσης (for κομίσης) *POxy.* 2729.23-24, with διαμερήσαται for -ίσατε 15 (4th cent.)
σωφρονήσητε (for -ίσατε) *SB* 7655.28 (6th cent.)
ὑμῆν (for ὑμῖν) *PSI* 830.8 (4th/5th cent.)
ἡμῆν (for ἡμῖν) *SB* 9238.5 (6th/7th cent.)
ῥῆγος (for ῥῖγος) *POxy.* 1151 = *PGMXtn.* 5b.36, with Βήκτωρος for Βίκτορος 49, etc. (5th cent. ?)
νωμήσμα[τι (for νομίσματι) *StudPal.* iii, 157.4 (5th/6th cent.); sim. *PColt* 59.7, etc. (A.D. 684 ?); 56.10 (A.D. 687)
μακαρήου (for μακαρίου) *StudPal.* xx, 255.1,3, with many other interchanges of η and ι (6th cent.)
οἰκήδ(ιον) (for οἰκίδιον) *SB* 4861.2 (Byz.); sim. *PLond.* 1872.11 (A.D. 548)
χήλιαι (for χίλιαι) *SB* 4909.4 (Byz.)
φοινήκων (for φοινίκων) *StudPal.* iii, 192.5 (7th cent.)
ἀποκρήσεος (for -κρίσεως) *PApoll.* 62.5 (A.D. 703-15)

See further the frequent change of ι > η in the 2nd hand of *POxy.* 1901 (6th cent.), e.g., μακαρήας for -ίας 60, ἁγήου Γεοργήου for -ίου 62, and *SB* 4755 (Byz.), with almost every ι > η, e.g., ὀπήσω for ὀπίσω 23, δήχα for δίχα 24.

Note. Latin *i* is sometimes transcribed by η in loanwords:

σκρήνιον *scrinium* *CPR* 27 = *MChr.* 289.11 (A.D. 190); *BGU* 40.10 (2nd/3rd cent.: *BL* i, 11); *PPrinc.* 153.1-2 (2nd/3rd cent.); etc.
σκρήνια, σκρηνίο(υ) *PMerton* 15.30 (A.D. 114); sim. *SB* 9656 = *PMilVogl.* 203.2 (2nd half 2nd cent.)
but σκρ]είνιον *BGU* 388 = *MChr.* 91 ii.24, with σκρήνιον 27 (2nd half 2nd cent.)
σκρινίου *PCairMasp.* 131.13,18 (6th cent.)
σκρίνιον *PCairMasp.* 340 V.78 (6th cent.)
σκρινιάριος *PLond.* 1702.1,6 abbrev. (1st half 6th cent.); 1677.10 (A.D. 566/7); sim. 1676.31 (A.D. 566-73); etc.
φαμηλία *familia* *POxy.* 1712.3 (A.D. 394); sim. *PRyl.* 641.11 (4th cent.); *PLond.* 1343.1 (A.D. 709)
but φαμιλίᾳ *BGU* 316 = *MChr.* 271.10 (A.D. 359)
φαμιλιάριον *PStrassb.* 40.11, sim. 24 (A.D. 569)
νοβελλησίμου *nobilissimus* *SB* 8986.6 (A.D. 640/1)

b. η x ει.[1]

This interchange likewise occurs very frequently in all phonetic conditions throughout the Roman and Byzantine periods.

1) η(ι) > ει.

a) Unaccented:

εἱμιαρουρίου (for ἡμι-) *PMerton* 10.34 (A.D. 21)
εἱμιτύλια (for ἡμι-) *BGU* 40.12 (2nd/3rd cent.: *BL* i, 11)
εἱμῖν (for ἡμῖν) *PSI* 917.4 (1st cent.); sim. *SB* 7660.13, with ἡ for εἰ 21 (ca. A.D. 100); *SB* 7572.8 (prob. 1st half 2nd cent.); *SB* 9452.8 (3rd cent.); cf. *PColt* 59.12 (A.D. 684?)
πάσει (for πάσῃ) *PTebt.* 311.27 (A.D. 134)
σειμεῖα (for σημεῖα) *PPrinc.* 73.14 (3rd cent.)
εἴλεις (for εἴλης) *PLond.* 240 = *PAbinn.* 51.1, with ἡρηνάρχου for εἰρην- 9 (A.D. 346)
ὀκδόεις (for ὀγδόης) *PPrinc.* 93.1 (7th cent.)
εἱδέος (for ἡδέως) *PLond.* 405 = *PAbinn.* 11.14 (ca. A.D. 346)
ἐπέμφθεισαν (for -ησαν) *POxy.* 1868.7 (6th/7th cent.)

b) Accented:

εἶ (for ἦ) μήν *POxy.* 259 = *MChr.* 101.6 (A.D. 23); *POxy.* 240.4 (A.D. 37); *POxy.* 255 = *WChr.* 201.15 (A.D. 48); *SB* 7463.6 (A.D. 51); *POxy* 260 = *MChr.* 74.7 (A.D. 59); *PAmh.* 68 = *WChr.* 374.33 (A.D. 81-96); etc.
ἀποκαταστείσειν (for -στήσειν) *POxy.* 94 = *MChr.* 344.17-18 (A.D. 83)
με]ριμνείσεις (for -ήσεις) *PJand.* 13.9-10, cf. 11 (4th cent.)

[1] For the fluctuation of names in -ηους/-ειους, see Morphology I C 5.

εἴ (for ἤ 'or' disjunctive) *PMich.* 545.20 (A.D. 88/89); *PFay.* 113.5,12; 114.19: *BL* iv, 29 (A.D. 100); *BGU* 647.15 (A.D. 130); *POxy.* 1584.9 (2nd cent.); 2599.32 (3rd/4th cent.); *BGU* 316 = *MChr.* 271.12 (A.D. 359)
εἵμισυ (for ἥμισυ) *PMich.* 563.27-28 (A.D. 128/9); sim. *StudPal.* iii, 302 = xx, 215.3 (6th cent.)
παραβεῖναι (for -ῆναι) *SB* 7816 = *PSI* 1263.9 (A.D. 166/7)
ἀχθεῖναι (for -ῆναι) *SB* 7374 = *POslo* 21.14 (7th cent.)
δεί (for δή) *SB* 7696.108 (A.D. 250)
εἶσαν (for ἦσαν) *SB* 9621.5 (3rd cent. ?)
μεί (for μή) *BGU* 13 = *MChr.* 265.22 (A.D. 289)
καμείλους (for καμήλους) *PGissBibl.* 31.21 (4th cent.)
εἴδη (for ᾔδει) *PVindobWorp* 15.5 (6th/7th cent.)

2) ει > η.

a) Unaccented.

i. Before a back vowel:

χρηῶν (for χρειῶν) *BGU* 543.2 (27 B.C.)
δάνηον (for δάνειον) *BGU* 1162.15 (17/16 B.C.); 1053 = *MChr.* 105 i.15; ii.3; sim. ii.17 (13 B.C.); 1055 = *MChr.* 104.8 (13 B.C.); *PTebt.* 386 = *MChr.* 298.16 (12 B.C.); *SB* 5244.6 (8 B.C.); 7341.11 (A.D. 3); *PLond.* 277 (ii, 217-18).1,5 (A.D. 23); *PRyl.* 160c, ii.1,35, etc. (A.D. 32); *PMich.* 238.4,9, etc., abbrev. (A.D. 46); etc.
βοήθηαν (for βοήθειαν) *BGU* 1201.12 (A.D. 2)
'Αλεξάνδρηαν (for 'Αλεξάνδρειαν) *POxy.* 1155.4 (A.D. 104)
σημηαφόρος (for σημεια-) *StudPal.* xxii, 92.1 (3rd cent.); cf. *SB* 979.7, inscr. (1st cent.)

ii. In other positions:

ἡ (for εἰ) *POxy.* 1291.5 (A.D. 30); 1452.34, corr. 7 (A.D. 127/8); *PMich.* 489.5 (2nd cent.); *BGU* 247.5 (2nd/3rd cent.); *PAlex.* 28.27 (3rd cent.); *PLond.* 245 = *PAbinn.* 45.12 (A.D. 343); *POxy.* 1223.12 (late 4th cent.); *PSI* 1426.6 (5th/6th cent.); *PJand.* 103.11 (6th cent.); *SB* 9139.12 (6th cent.); etc.
ἡμί (for εἰμί) *POxy.* 1481.3 (early 2nd cent.); sim. *PLeit.* 5.10 (ca. A.D. 180); *BGU* 1069 R.8 (A.D. 243/4); *PTebt.* 420.4,26 (3rd cent.)
ἡδύης (for εἰδυίης) *PLBat.* vi, 21.31,34 (A.D. 122); *PMeyer* 8.20 (A.D. 151)
ἡδότης (for εἰδότης) *PLBat.* v, iii.48-49, vi.25-26, sim. v.40 (A.D. 174)
πίστη (for πίστει) *PLond.* 244 = *PAbinn.* 22.18,22: *BL* v, 2 (ca. A.D. 346)
ἔτη (for ἔτει) *SB* 4503.22 twice (A.D. 606)
ἡρηνάρχῳ (for εἰρην-) *SB* 9563 i.2,4; ii.7 (4th cent.); sim. *PLBat.* xi, 9 V (5th cent.); cf. ἐν ἡρήνη (for εἰρήνῃ) *SB* 3904.1-3; sim. 4214.1-2; 4215.1, inscrr. (Xtn.); *SB* 6842, inscr. (5th cent.)

χηρή (for χειρί) *SB* 4753.15, with μεμήσθωμε for -μίσθωμαι 14 (Byz.)
ἠδιόχηρον, χηρὴ ἐμῇ (for ἰδιόχειρον, χειρί) *SB* 4755.30 (Byz.); sim. *PColt* 57.23 (A.D. 689)

b) Accented.

i. Before a back vowel:

χρήας (for χρείας) *BGU* 1199.9 (4 B.C.); *POxy.* 745.6 (ca. A.D. 1)
χρήαν *POxy.* 731.7 (A.D. 8/9); 2835.16 (mid 1st cent.); 1222.5 (4th cent.); cf. *SB* 10693.8, inscr. (1st cent.)
χρήαις *PLond.* 1171 V c = *WChr.* 439.9 (A.D. 42)
τροφήας (for τροφείας) *BGU* 1058 = *MChr.* 170.14, sim. 16-17,37,39, with ἀπωλήας for ἀπωλείας 35, etc. (13 B.C.); sim. *BGU* 1106 = *MChr.* 108.19, etc. (13 B.C.)
βαλανή(ων) (for βαλανείων) *WO* 666.2 (10/9 B.C.); *SB* 4519.1 (A.D. 14); *WO* 1321.3 (A.D. 21/22); 1387.6 (A.D. 49/50); etc.
βαλανήου (for -είου) *OStrassb.* 263.2 (A.D. 29); *PMich.* 312.38; V.1, with -είου 23, -εῖον 30-31, -ῖον 12-13,17 (A.D. 34); etc.
βαλανῆον (for -εῖον) *SB* 10581.4 (A.D. 37-41)
θηλήας (for θηλείας) *POxy.* 1457.8 (4/3 B.C.); sim. *PMich.* 278-9.3 (ca. A.D. 30)
Θεαδελφήας (for -είας) *PMed.* 3.1-2, sim. 5 (A.D. 1-14)
Καισαρήου (for -είου) *PLond.* 139a (ii, 200-1).12 (A.D. 48); *WO* 1387.4-5 (A.D. 50); *SB* 2133.4,5 (A.D. 50); sim. *BGU* 755.2 (A.D. 118)
δοκιμήου, γυνεκῆα (for -είου, -εῖα) *PMich.* 343.3,5 (A.D. 54/55)
σπονδήου (for σπονδείου) *SB* 5252.20 (A.D. 65)

ii. In other positions:

οἰκογενῆ (for -γενεῖ) *POxy.* 48.4 (A.D. 86)
θεωσεβῆ (for -εῖ) *PHermRees* 17.1 (5th/6th cent.)
π]ροσφωνῆσθαι (for -εῖσθαι) *BGU* 11 = *WChr.* 239.11 (mid 2nd cent.)
ἀφαιρῆσθαι (for -εῖσθαι) *BGU* 473 = *MChr.* 375.12 (A.D. 200)
ἤτ' ἄν (for εἴτ' ἄν) *SB* 4317.8,9 (ca. A.D. 200)
ἐκῆ (for ἐκεῖ) *SB* 7357 = *PMich.* 206.10 (3rd cent.)
φοβηθῆσαν (for -θεῖσαν) *SB* 9509 = *PMed.* 77.8-9, with εὐπρεπῆ for -πρεπεῖ 11 (3rd cent.)
ἐπιταγῆσαν (for -εῖσαν) *PSI* 1426.2, with τρημισείου for τριμησίου 3, ἡ for εἰ 6 (5th/6th cent.)
ἡμῆς (for ἡμεῖς) *PLond.* 410 = *PAbinn.* 34.8 (ca. A.D. 346)
προσκυνῆ (for -κυνεῖ) *POxy.* 1837.16 (early 6th cent.)
συμφονῆ (for -φωνεῖ) *PMich.* 608.20 (6th cent.)

This interchange of η with ι and ει reflects the phonological development of the Greek Koine, in which the sound originally represented by η generally

merged with /i/ by the second century A.D.[1] In the later papyri, however, there is a noticeable increase in the frequency of these interchanges. They do not become as common as the interchanges of ει with ι, αι with ε, or even of οι with υ, until the Byzantine period. In light of the interchange of η and ε, the sounds represented by the symbols η, ι, and ει may not have been universally identified in Egypt during the Roman period. Bilingual interference could have been a retarding factor. In Coptic, ⲏ occurred only in accented syllables and was bivalent.[2] In all dialects it represented an allophone of /i/ before or after sonants as well as the phoneme /ε/ (long or short). In Bohairic, it also represented an allophone of /æ/.[3] On the other hand, the interchange of η with ε takes place mainly in the same phonetic conditions in which the interchange of ε with ι and ει occurs.[4] This indicates that η may have been only an alternative representation of /i/.

2. Interchange of η and ε (αι).

There is an interchange of η with the symbols for the /ε/ phoneme ε and αι throughout the Roman and Byzantine periods. Most examples of these interchanges occur in specific phonetic conditions.

a. η × ε.

1) η(ι) > ε.

a) Unaccented.

i. Before or after a nasal:

δεμοσίων (for δημοσίων) *PMich.* 563.30 (A.D. 128/9); sim. *PCairMasp.* 286.8,19 part. rest. (A.D. 527/8)

μετέρα (for μητέρα) *PTebt.* 412.4 (late 2nd cent.); *BGU* 1024 v.12, corr. 9 (late 4th cent.: *BL* i, 88)

μετρός (for μητρός) *PStrassb.* 314.28 (A.D. 211); *PBon.* 28.3,4,6, etc. (A.D. 220/4)

μετρί (for μητρί) *PBaden* 95.352 (7th cent.)

σεσεμείωμαι (for σεσημ-) *SB* 7817 = *PSI* 1328.9 abbrev. (A.D. 201); sim. *OTait* 2100.9 (4th cent.)

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[1] In the Attic inscrr., an interchange of η and ι is attested from A.D. 150 on (*MS*, 19-20), and η is an alternative representation of /i/ by the second cent. A.D. in Asia Minor (Schweizer, 46-47). An itacistic pronunciation is just beginning to be reflected in the Herc. papp. (Crönert, 25-26).

[2] Copt. ⲏ sometimes renders a short vowel of a diff. timbre from ⲉ, e.g., ⲕⲏⲙⲉ < fem. *kŭ́mmat*, masc. *kŭ́mmu*, diff. likewise from /ē/ < Eg. *ī*, sts. also represented by ⲏ, e.g., ⲏⲥⲉ = Isis (Vergote, *BIFAO* 61 [1962], 75-76; *Gram.* Ia, §42-44; cf. Lambdin, *JNES* 17 [1958], 177-93). In the papp., Ἧσις is also found, e.g., Ἥσιδος *POxy.* 241.12 (ca. A.D. 98); *POxy.* 47.8 (late 1st cent.).

[3] For the phonemic system of Copt. vowels, see the quadrilaterals below, pp. 332-3.

[4] See below, pp. 249-62.

τωλμεθής (for τολμηθείς) *PCairIsidor*. 62.8, with ἐπήνηκεν for ἐπήνεγκεν 17 (A.D. 296); sim. *PColt* 18.12,15,32,40 (A.D. 537); 25.2 (A.D. 569); etc.
μεχανῇ (for μηχανῇ) *SB* 7253 = *PMich*. 221.13 (ca. A.D. 296)
μενώς (for μηνώς) *PAntin*. 42.20 (A.D. 542)
μενί (for μηνί) *POxy*. 1897.8 (6th/7th cent.); *SB* 5609.4 (A.D. 735: *BL* v, 97)
ἐμῶν (for ἡμῶν) *PSI* 839.5, with σέ for σή 6 twice (6th cent.)

ii. Before σ/ς:

Πέρσες (for Πέρσης) *SB* 5110 = *PRyl*. 160d, ii.25 (A.D. 42)
ταύτες (for ταύτης) *PLond*. 333 = *MChr*. 176.7 (A.D. 166)
ἀπὸ κώμες (for κώμης) *StudPal*. iii, 123.1 (6th cent.)
τῇ[ς] τέχνες (for τέχνης) *PCairMasp*. 20 V.5 (6th cent.)
θεσαυροῦ (for θησαυροῦ) *PSI* 1147.24 (A.D. 202/3)

Note. εὑρεσιλογεία[ς] (for εὑρησιλογίας) *POxy*. 71 i = *MChr*. 62.9, with ε corr. from η (A.D. 303), sim. *PRyl*. 662.14 (A.D. 364), *SB* 5656 = *PCairMasp*. 305.21 (A.D. 568), etc., may reflect the aor. pass. -ρεθ-/-ρηθ- alternation.

iii. Before or after a liquid:

[ἀ]ναπλεροῦντα (for -πληρ-) *SB* 8030 = *PMich*. 245.38, sim. 35 (A.D. 47)
ἐπλερώθην *PSI* 48.2, with νεομενίας for νεομηνίας 3,4,5,6 (6th/7th cent.)
στέρεσιν (for στέρησιν) *POxy*. 2342, above line 30 (A.D. 102)
ἀλεθῆ (for ἀληθῆ) *POxy*. 1198.24 (A.D. 150)
τιρετῇ (for τηρητῇ) *PMerton* 42.3 (5th cent.)
ὀνελάτης (for ὀνηλάτης) *StudPal*. iii, 56.1 (6th cent.); sim. 324.2,4 (6th cent.); 670.1 (7th cent.); viii, 749.2; 768.2; 923.1 (7th cent.); etc.

iv. In final position:

Εὐφροσύνε (for -σύνη) *OOslo* 26.5 (4th/5th cent.)
ἵνα μάθε (for μάθῃ) *POxy*. 1929.9 (late 4th/5th cent.)
ἐὰν ... μὴ καταλάβε (for -λάβῃ) *POxy*. 130.16 (6th cent.)

b) Accented.

i. Before or after a nasal:

ἕμισους (for ἥμισυ) *BGU* 765.6 (A.D. 166?)
ἠριθμέμεθα (for -μήμεθα) *POxy*. 1430.8 (A.D. 324)
ἑβδομέκοντα (for ἑβδομήκοντα) *PHermRees* 83.5 (6th cent.)
σέμερον (for σήμερον) *PPar*. 21c.18 (A.D. 599)
ὀφλέματος (for ὀφλήματος) *PPar*. 20.43 (A.D. 600)

ii. Before σ/ς:

διακονέσσι (for διακονήσει) *BGU* 261.26-27 (ca. A.D. 105; cf. *PMich.* 202)
πωλε͂σαι (for πωλῆσαι) *PVindobWorp* 10.14 (A.D. 143/4)
αὐτε͂ς (for αὐτῆς) *PSI* 66.4, with μετήν for μηδέν 32, etc. (5th cent. ?)
μετ̣ὰ σπουδε͂ς (for σπουδῆς) *POxy.* 1837.10 (early 6th cent.)
ἀγαθε͂ς (for ἀγαθῆς) *SB* 9593.20 (6th/7th cent.)

iii. In final position:

μέ (for μή) *PRyl.* 602.11 (25 B.C.); *PIFAO* ii, 28.6 (1st cent.); *PWürzb.* 21 A.20 (2nd cent.); *POxy.* 1874.17 (6th cent.); etc.
ἕ͂ (for ἤ 'or' disjunctive) *PCairIsidor.* 70.7 (ca. A.D. 310)
ἐπιδέ (for ἐπειδή) *POxy.* 1683.17, with αι > η 19-20 (late 4th cent.); *PJand.* 126.1 (ca. A.D. 400); *POxy.* 157.1 (6th cent.); *PSI* 1430.3 (7th cent.)
σε͂ (for σῇ) *POxy.* 1872.4 (late 5th/early 6th cent.)
cf. ἐμε͂ (for ἐμῇ) *PColt* 55.8,13 (A.D. 682 ?); 56.16 (A.D. 687); etc.

Note. The spellings Μεσορέ (for Μεσορή) *POxy.* 1947.3 (early 6th cent.), and Μεσουρέ *PGrenf.* ii, 120 = *StudPal.* viii, 784.1 (7th cent.), probably reflect the variant Coptic spellings ⲙⲉⲥⲟⲣⲉ, ⲙⲉⲥⲟⲩⲣⲉ, ⲙⲏⲥⲟⲩⲣⲓ, ⲙⲏⲥⲟⲩⲣⲉ, etc.[1]

2) ε > η.

a) Unaccented.

i. Before a back vowel:

ἠάν (for ἐάν) *POxy.* 1480.13,24 part. rest. (A.D. 32); *BGU* 1097.3,16 (A.D. 41-69); *PSAAthen.* 62.9 (1st/2nd cent.); *PCornell* 14.11 (A.D. 180-92); *PBas.* 16.12 (1st half 3rd cent.); *PRein.* 118.8 (late 3rd cent.); *PGen.* 53 = *PAbinn.* 36.10,19 (ca. A.D. 346); *PPar.* 21b.16: *BL* i, 340 (A.D. 592); etc.
ἡαυτῆς (for ἑαυτῆς) *SB* 5217.16 (A.D. 148); cf. ἡεαυτοῦ *PMich.* 343.2 part. rest., 9 (A.D. 54/55)
ἡορτῆς (for ἑορτῆς) *SB* 9409 (3).105 (A.D. 260 ?)
ἡορτοῦν(τες) *SB* 9410 (7).73,75,76 (ca. A.D. 255)

ii. Before or after a nasal:

μηνούσης (for μενούσης) *PMich.* 254-5.7 (A.D. 30/31)
ἠνιαυτόν (for ἐνιαυτόν) *SB* 9636.4, sim. 13 (A.D. 136); *SB* 7515.684 (A.D. 155); *PLBat.* vi, 53 B.9 (A.D. 208/9-219/20)
ἠνιαύσιος *PRossGeorg.* iii, 8.11 (4th cent.)
δυνάμηθα (for -μεθα) *PSI* 831.27 (4th cent.: *ChrEg.* 45 [1970], 357)
cf. ἠν (for ἐν) *SB* 3907.4, inscr. (Xtn.)

[1] Crum, s.v. ⲙⲓⲥⲉ, p. 186.

iii. Before a liquid:

ἀμηλήσις (for ἀμελήσης) *PPar.* 18.11, corr. 4 (3rd cent.: *BL* iv, 67)
ἀμηλεῖς (for ἀμελεῖς) *PMich.* 510.34 (2nd/3rd cent.)
τετηλιομένης (for τετελειωμένης) *POxy.* 1474.4 (A.D. 216)
ἡλεουρ(γῷ) (for ἐλαιουργῷ) *StudPal.* viii, 955.1 (5th/6th cent.)
ἡλπίδα (for ἐλπίδα) *POxy.* 1874.10 (6th cent.)

iv. In final position:

ἥδη (for ἧδε) *PMich.* 312.15 (A.D. 34); 121 R IV v.2 (A.D. 42); 276.14, sim. 25 (A.D. 47); 353.25 (A.D. 48)
πέντη (for πέντε) *PMich.* 121 R II viii.1 (A.D. 42); *BGU* 764.5 (A.D. 160-7); *PBerlLeihg.* 24.8 (A.D. 169); *OMich.* 408.5-6 (A.D. 285: *BL* iii, 264); 1058.4 (mid/late 3rd cent.); *SB* 7621.7 (A.D. 310-24); *PLond.* 410 = *PAbinn.* 34.13 (ca. A.D. 346); *BGU* 740.13 twice (Byz.); *PApoll.* 41.9 (ca. A.D. 708/9); etc.
δεκαπέντη *PRyl.* 358.4 (prob. A.D. 216-17); *OMich.* 1057.6-7 (mid/late 3rd cent.); *OMich.* 442 = *SB* 9037.3 (A.D. 291/2)
ὧδη (for ὧδε) *POxy.* 1160.14 (late 3rd/early 4th cent.)
καταξιώσατη (for -τε) *POxy.* 1872.9, sim. 7 (late 5th/early 6th cent.)
cf. χαῖρη (for χαῖρε) *SB* 5856.2, inscr. (n.d.)

v. In other positions:

δηδομένου (for δεδομένου) *PFlor.* 68.3 (A.D. 172+)
ἡκ (for ἐκ) *POxy.* 1704.19 (A.D. 298)
κατάθησιν (for -θεσιν) *PSI* 1338.19, with ὑπερησίαν 13 (A.D. 299)
ἡγό (for ἐγώ) *POxy.* 2187.12 (A.D. 304)
πεντηκαιδεκάτης (for πεντε-) *OMich.* 1021.4-5 abbrev. (early 4th cent.); *PNYU* 11a.105-6,127, etc., with πέντη 152, ἐνήα for ἐννέα 154 (1st half 4th cent.); *PBaden* 55.21 (6th cent.); *BGU* 972.7, part. rest. (6th/7th cent.); etc.
ἡκάστην (for ἑκάστην) *PSI* 825.3 (4th/5th cent.)
cf. ἡτῶν (for ἐτῶν) *SB* 10162 (541).1, inscr. (3rd/4th cent.)

b) Accented.

i. Before a back vowel:

πλήων (for πλέον) *PRyl.* 600.15 (1st hand), with πλῆν for πλέον 26 (3rd hand) (8 B.C.)
νήου (for νέου) *PMed.* 5.10 (A.D. 8/9)
νήα (for νέα) *BGU* 1095.12: *BL* i, 96 (A.D. 57)
ἐννήα (for ἐννέα) *WO* 46.7 (A.D. 97); *SB* 7583.4 (2nd cent.); *POxy.* 43 R iv.29 (A.D. 295); *PCairIsidor.* 50.27,32 (A.D. 310); *PLond.* 403 = *PAbinn.* 49.10 (A.D. 346); *SB* 9603a.8,28 (A.D. 372); *PNYU* 24.5,19 (A.D. 373); *StudPal.* iii, 68.4; iii, 454 = xx, 155.3; viii, 1279.4 (6th cent.); *PFouad* 85.14 (6th/7th cent.); etc.
δήοντι (for δέοντι) *PAmh.* 87 = *PSarap.* 27.20 (A.D. 125)

ἥως (for ἕως) *PLBat.* vi, 29.34 (A.D. 133); *PSI* 1338.11 (A.D. 299)
κρῆας (for κρέας) *POxy.* 1656.16, corr. 9 (late 4th/5th cent.)

ii. Before or after a nasal:

ξήνη (for ξένης) *PSI* 1230.10-11 (A.D. 203)
ἐπιδοθήντων (for -δοθέντων) *POxy.* 2131.4, with προστεθέντων also 4 (A.D. 207)
ἐνήκω (for ἐνέγκω) *POxy.* 1678.16,17, with ἐνήκε for ἐνέγκαι 15, φλῆτρος for φρέατος 31 (3rd cent.)
ἀνενήγκω *PAntin.* 93.41 (4th cent.)
cf. παρήνηγκεν *OMich.* 785.2 (4th cent.); sim. *POxy.* 1862.5,52, corr. 22 (7th cent.)
ἀπένηχες *POxy.* 119.2 (2nd/3rd cent.)
cf. παρθήνος (for παρθένος) *SB* 1562.2, inscr. (Xtn.)

iii. Before a liquid:

φήρων (for φέρων) *PMich.* 520.10 (4th cent.)

iv. In other positions:

διστήκους (for διστέγους) *SB* 5108 = *PRyl.* 160.2 (A.D. 28/29); sim. *PRyl.* 160c, i.13 (A.D. 32); 5109 = *PRyl.* 160d, i.2 (A.D. 42)
ἀρχήφοδος (for ἀρχέφοδος) *PRyl.* 135.15 (A.D. 34)
εὐεργήτου (for εὐεργέτου) *SB* 4669.3 (A.D. 614)
ἥκτης (for ἕκτης) *SB* 5590.3 (A.D. 723: *BL* v, 96); cf. ἥκτον *SB* 351.1-2, inscr. (A.D. 6/7)

Note. There is some fluctuation between ε and η in the transcription of Latin *ĕ* and *ē*.

1. Latin *ĕ* is normally transcribed by ε, but η occurs occasionally as an orthographic variant and is common in *Vestinus*:

Οὐεστίνου *OTaitCamb.* 66.2-3 part. rest. (A.D. 140); sim. *PSI* 276.2 (A.D. 151); 277.4 (A.D. 152)
but Οὐηστείνου *BGU* 112 = *MChr.* 214.8 (A.D. 59/60+); sim. *POxy.* 250.2 (A.D. 61?); *PFouad* 48.13 (A.D. 89); *PSI* 1136.6 (A.D. 104/5); etc.
Οὐηστείνωι *PFay.* 121.3 (ca. A.D. 100); sim. *POxy.* 531 = *WChr.* 482.6-7 (2nd cent.)
Οὐηστεῖνος *BGU* 807.3 (A.D. 185)
Οὐαλέριος *Valerius PMichael.* 8.1 part. rest. (A.D. 48); *SB* 9017 (8).1 (1st/2nd cent.); *PLond.* 196 = *MChr.* 87.20 (ca. A.D. 138-61); *PSI* 1027.19 (A.D. 151); *PHamb.* 33 ii.19 (2nd half 2nd cent.); 35.2 (ca. A.D. 160); *POxy.* 237 viii.7-8 (A.D. 186); *BGU* 716.4 (A.D. 224); *PAmh.* 137.25 (A.D. 288/9); etc.
but Οὐαλῆρις *PLond.* 1266 e (iii, 39).3 (A.D. 167-76); sim. *SB* 9393.1 (A.D. 211); 9146.9 (6th/7th cent.)

Οὐεσπασιανοῦ *Vespasianus PSI* 1433.7,11 (A.D. 69); *BGU* 910 ii.2 (A.D. 71: *BL* iii, 15); etc.
but Οὐησπυσιανοῦ *WO* 773.4 (A.D. 69); sim. *SB* 8952 = *PSI* 1319.73 (A.D. 76)
Ἀρμενιακοῦ *Armeniacus PFlor.* 74.21 part. rest. (A.D. 181); *POxy.* 475 = *WChr.* 494.33 (A.D. 182); *POxy.* 1127.33 (A.D. 183); *CPR* 29 = *MChr.* 335.3 (A.D. 184); etc.
but Ἀρμηνια[κοῦ *PFlor.* 46 = *MChr.* 185.26 (A.D. 182/3)
κουηεμπτίωνα *coemptio BGU* 1210 (33).93 (mid 2nd cent.)
λεγιωνάριος *legionarius* passim (see ι > ε below, p. 253)
but ληγιω(νάριος) *BGU* 344 ii.4 (2nd/3rd cent.)
κόμες *comes PLips.* 33 ii = *MChr.* 55.9 (A.D. 368); *POxy.* 1877.9 (ca. A.D. 488); *PSI* 480.1,11 (5th/6th cent.); *PLond.* 1701.1 (6th cent.); *PGrenf.* ii, 93.1 (6th/7th cent.); etc.
but κόμης *POxy.* 2267.29 (A.D. 360)
also κόμις *BGU* 1027 (p. 26).9 (4th/5th cent.)
οὐετρανός *veteranus* passim (see below, p. 284)
but οὐητρανῶν *CPR* 244.2 (2nd/3rd cent.)
also οὐατρανός (see ε > α below, p. 284)

2. Latin *ē* is normally transcribed by η, with ε as an occasional orthographic variant:

ληγᾶτον *legatum PSI* 738.12 (A.D. 100); 1411.12 (2nd cent.); *BGU* 1210 (33).94 (mid 2nd cent.); 1662.5 (A.D. 182); etc.
ληγάτου *PHamb.* 70 V.2 (A.D. 144/5+); *BGU* 327.6 = *MChr.* 61.5 (A.D. 166); *PCairMasp.* 151.295 (A.D. 570); *PGrenf.* i, 62.16 (6th/7th cent.); cf. *PColt* 30.7 (A.D. 596); etc.
σηκρήτῳ *secret(ari)um POxy.* 1204.12 (A.D. 299)
δηφηνσόρων *defensor PHermRees* 69.3 (A.D. 412), etc., see pp. 110, 118
but δεφήνσωρι *PRossGeorg.* v, 27.1 (1st half 4th cent.)
δησέρτορας *desertor PFlor.* 362.3 (4th cent.)
ἤδικτα *edictum PSI* 684.3,12 (4th/5th cent.)
ἤδικτον *PSI* 1350 R.11 (6th cent.)
but ἔδικτα *PCairMasp.* 295 i.3, with ἤδικτα ii.19 (6th cent.); sim. *PCairMasp.* 20 R.2 (6th cent.)
προδηληγάτου (*delegatum*) *PErl.* 55.13 (ca. A.D. 542); *PLond.* 1663.23 (6th cent.); sim. *PCairMasp.* 320.4 (A.D. 541 ?); 321 B.5 (A.D. 548/63)
cf. ῥέμους *remus PLond.* 481 (ii, 321-3) R.30, Lat.-Gr. glossary (4th cent.)

b. η × αι.

This interchange likewise occurs in various phonetic conditions but considerably less frequently than the interchange of η and ε.

1) η > αι:

ἀνάνκαιν (for ἀνάγκην) *PFay.* 109.1 (early 1st cent.)

ἀποθήκαιν (for -θήκην) *BGU* 816.5 (3rd cent.)
ὅπως ... ἀποκαταστ[τ]ήσαι (for -στήσῃ) *BGU* 1575.(22-)23 (A.D. 189/90)
ἐὰν ... ἀξιώσαι (for -σῃ) *POxy*. 2602.5-6,9-10 (early 4th cent.)
ἵνα ... σφραγίσαι (for -σῃ) *POxy*. 157.6, with ὑποδέξαιται for -ηται 5 (6th cent.)
ἵνα ... πέμψαι (for -ψῃ) *POxy*. 1860.11-12 (6th/7th cent.)
αἱμίσους (for ἡμίσους) *PRossGeorg*. v, 19.5 (A.D. 236)
μναιμίοις (for μνημείοις) *PFlor*. 9.10 (A.D. 255)
καταβολαῖς (for -βολῆς) *PEdfou* 4.11 (7th cent.)

2) αι > η:

ἐλήου (for ἐλαίου) *PMich*. 123 R I a.16, corr. d.13, etc. (A.D. 45-47)
ἧς (for αἷς) ἄλλαις *POxy*. 1027 = *MChr*. 199a.5 (mid 1st cent.)
ἑ̣κατεστῆς (for ἑκατοσταῖς) *PCairMasp*. 286.7,18 (A.D. 527/8)
πρᾶξη (for πρᾶξαι) *POxy*. 718.25 (A.D. 180-92)
κομίση (for κομίσαι) *PTebt*. 413.9 (2nd/3rd cent.)
γράψη (for γράψαι) *SB* 9287.3-4 (7th cent.)
Παληᾷ (for Παλαιᾷ) *BGU* 9 = *WChr*. 293 ii.14 (prob. late 3rd cent.)
παληοῦ (for παλαιοῦ) *POxy*. 1289.12 (5th cent.)
παληστάς, παληστῆς (for παλαιστάς, -τῆς) *POxy*. 9 V.12 (3rd/early 4th cent.)
ἡ (for αἱ) *PAbinn*. 34.13 (ca. A.D. 346); *SB* 4755.16 (Byz.)
παραπεπτοκένη (for -κέναι) *POxy*. 1133.12 (A.D. 396)
χῆρε[ιν] (for χαίρειν) *PBaden* 55.11 (6th cent.)
ἡωνίου (for αἰωνίου) *SB* 9284.1 (A.D. 553)
cf. Κησαρῖον (for Καισαρεῖον) *POxy*. 1683.19-20 (late 4th cent.)

The interchange of η with ε (and its occasional interchange with αι) takes place mainly in the same phonetic conditions in which ε interchanges with ι, namely, before a back vowel (especially in the early Roman period), before or after a nasal, before a liquid, and in final position, with little difference between unaccented and accented syllables. This indicates that η may have been only an alternative representation of /i/.[1] On the other hand, frequent interchanges of η with the symbols for /ε/ at the same time that η interchanges with ι and ει are found, except for a transitional period in Attic inscriptions,[2] only in the Ptolemaic papyri[3] and locally elsewhere in the Koine, especially in areas where

[1] See ε × ι below, pp. 249-56.

[2] The interchange of η with αι ceases once an interchange of η with ι begins ca. A.D. 150, but an occasional interchange of η with ε continues for another cent. (*MS*, 19-20). At Pergamum, an interchange of η and ε is found only before -μα and in one ex. in which the explanation is also morphological (Schweizer, 47-49); at Magnesia there is a sporadic interchange of η with ε before the interchange of η w. ι begins (Nachmanson, 31-32). An interchange of η w. ε is also found at Delphi (Rüsch, 61-62), but not in the Herc. papp. (Crönert, 19). A local pronunciation of η as /ε/ is reflected in its replacement by ε in the Pontic dial. of MGr., e.g., πεγάδ < πηγάδι (Schwyzer i, 186).

[3] There are freq. interchanges of η both w. ι and ει and w. ε and αι, leading Mayser (i, 79) to conclude that η represented both /ε/ and /e/ (later /i/).

bilingual interference was operative.[1] In Egypt, the bivalence of Coptic ⲏ[2] is a related factor, especially since the interchange of η and ε is commonly found in documents showing other evidence of bilingual interference.[3]

3. Interchange of ε (αι) and ι (ει).

There is also an occasional interchange of the symbols representing /ε/ and /i/. These interchanges occur mainly in specific phonetic conditions, namely before back vowels, nasals, liquids, or /s/. They occur in both accented and unaccented syllables without apparent distinction.

a. ε × ι.

1) ε > ι.

a) Before a back vowel:

θέσιως (for θέσεως) *PPrinc.* 54.53 (early 1st cent.)
ἀνακνώσιος (for -γνώσεως) *PMich.* 322a.43, with μεριτέᾳ for -είᾳ 40 (A.D. 46)
καταγιωχέναι (for -γεωκέναι) *PTebt.* 470.6 (A.D. 111-13)
ἰορτῆς (for ἑορτῆς) *POxy.* 530.17, corr. 30 (2nd cent.); *PSI* 831.6, sim. 12: *ChrEg.* 45 (1970), 357 (4th cent.)
ἰορταῖς *PSI* 1152.1, with ἰστιατορίας for ἑστ- 6 (1st half 2nd cent.)
γιοργῦς (for γεωργοῖς) *SB* 4643.2 (5th/6th cent.)

Note. The spelling περσία is as common as the classical spelling περσέα:

περσίας *POxy.* 2767.15,21; 2969.12 (A.D. 323); 2993.35 (A.D. 323?); 2994.8 (early 4th cent.)
περσίαν *PSI* 285.10 (A.D. 294?); *POxy.* 53.7, sim. 9 (A.D. 316)
περσιῶν *BGU* 1028.9 (2nd cent.)
περσέας *POxy.* 1188.3,22,23 (A.D. 13); *PMilVogl.* 66 V.17 (2nd cent.); *StudPal.* v, 28.7 (3rd cent.); *BGU* 900.26 (Byz.)
περσέαν *StudPal.* v, 7 = xx, 58 iii.7 (ca. A.D. 265/6); *PLBat.* xi, 27.5 (3rd/4th cent.)

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[1] Mag. tablets show such spellings as ἑμῖν for ἡμῖν: Audollent, #9.9, Cnidus (2nd/1st cent. B.C.), [Δ]εμετρ[ίαν] for Δημητρίαν 33.41, Cyprus (prob. 3rd cent. A.D.), μέ for μή 241.31, Carthage (n.d.), δήσατη for δήσατε, ἠνιαυτόν for ἐνιαυτόν, etc. 16 x.8,16, Syria (3rd cent. A.D.). Sim. spellings are freq. at Nessana, e.g., ἑμᾶς and ἑμῖν *PColt* 89.23, w. τἐς for τῆς 44 + η > ε 11 times, η > αι 9 times, ε > η once (late 6th/early 7th cent.); καμέλον for καμήλων 37.15 (A.D. 560-80?); etc.; δεμόσια for δημόσια, ἐπλερόθειμεν for ἐπληρώθημεν 59.7,10 (A.D. 684?), etc.; γινομήνου for γινομένου 44.3 (A.D. 598). The people of Nessana spoke Syriac and Arabic (*PColt*, p. 18). Cf. the occ. transcription of η by *a* in Syriac and Ethiopic (Schwyzer i, 159, 161).

[2] See above, p. 242.

[3] E.g., *PRyl.* 160-160d; *PMich.* 221, 245, 254-5, etc.; *SB* 5590, 5609.

b) Before or after a nasal:

ἐνίνκῃ (for ἐνέγκῃ) *SB* 8030 = *PMich.* 245.31 (A.D. 47)
ἐνίγκῃς *PTebt.* 421.8, sim. 6-7 (3rd cent.)
μετανίγκαι *PLond.* 236 = *PAbinn.* 4.12 (ca. A.D. 346)
ἔνικον impt. *POxy.* 121.17 (3rd cent.)
ὁ ἐνιγών *BGU* 385 = *WChr.* 100.7 (2nd/3rd cent.)
ἔνεκιν (for ἕνεκεν) *PAntin.* 43.10 (late 3rd/4th cent.)
παραγενόμινος (for -μενος) *PMerton* 91.14 (A.D. 316)
οὐδίναν (for οὐδένα) *PLond.* 410 = *PAbinn.* 34.7 (ca. A.D. 346)
μιμισθῶσθαι (for μεμισθ-) *POxy.* 1126.2-3 (5th cent.)

c) Before σ/ς:

ἐκθίσται (for ἐκθέσθαι) *PMich.* 347.1 (A.D. 21)
μέρισι (for μέρεσι) *PFlor.* 50.54,91 (A.D. 268)
σισημίομαι (for σεσημείωμαι) *PNYU* 10.13 (1st half 4th cent.)

d) Before a liquid:

πιριγραφῇ (for περι-) *PSI* 1100.16 (A.D. 161)
[ἀ]διλ(φῷ) (for ἀδελφῷ) *POxy.* 158.6 (6th/7th cent.)

e) In other positions:

ὑπόχριοι (for -χρεοι) *PMich.* 333.23 (A.D. 52)
ἔλαβι (for ἔλαβε) *PLond.* 247 = *PAbinn.* 68.30,37,42; *PLond.* 249 = *PAbinn.* 75.36, with δέδωκι for δέδωκε 42,43,46 (ca. A.D. 346)
σχιδάριν (for σχεδάριον) *POxy.* 2416.1 (6th/7th cent.)

Note 1. ἁλιεύς, etc., is the normal spelling in all forms; in the plural, ἁλεεῖς occurs rarely:[1]

ἁλιεύς *OWilb-Brk.* 77.2 abbrev., 3 (1st/2nd cent.); *OStrassb.* 637.10 (prob. 2nd cent.); *BGU* 1900.49,74,119,132 (ca. A.D. 196); *OTaitCamb.* 57.5 (late 2nd/3rd cent.); *SB* 9683.20-21 (late 4th cent.); *PSI Omaggio* 14.10 (A.D. 712); etc.
ἁλιέως *PFlor.* 333 = *PBrem.* 23.58 (A.D. 116); *POxy.* 1446.27 (A.D. 161-210); *PGot.* 3.3, sim. 6 (A.D. 215/16)
ἁλιέα *PFlor.* 275.19 (ca. A.D. 260); *SB* 9362.5 (A.D. 265)
ἁλιεῖς *PSI* 798.8 (2nd/3rd cent.); *PFlor.* 119.2 part. rest. (A.D. 254); 275.8 (ca. A.D. 260); *PAntin.* 96.16 (6th cent.); (acc.) *PSI* 160.21 (A.D. 149); *BGU* 1035 = *WChr.* 23.6 (5th cent.)
ἁλιέων *POxy.* 294.6 (A.D. 22); *PSI* 901.7,10,14,23 (A.D. 46); *PLeit.* 14.21 (A.D. 148); *PFlor.* 227*.22 (A.D. 258); *StudPal.* x, 77.1 (6th/7th cent.); *PApoll.* 75.6 (A.D. 703-15); etc.

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[1] ἁλεεῖς ([-eis < iis]) is a good variant in NT mss. as nearly always in LXX (*BDF*, § 29.5).

ἁλιεῦσι *POslo* 121.8,10,18 part. rest. (A.D. 131/2+); *PRyl.* 640.15 (A.D. 317-23); *POxy.* 141.3 abbrev. (A.D. 503)

ἁλιέας *PFlor.* 201.8 (A.D. 259)

ἁλιευτικῶν *BGU* 277.1 part. rest. (2nd cent.); *BGU* 10.14 (A.D. 192); sim. *POxy.* 1846.1 (6th/7th cent.); 1867.15 (7th cent.); etc.

ἡλίευσαν *POxy.* 2234.15-16 (A.D. 31); sim. *PFlor.* 275.24 (ca. A.D. 260)

ἁλεεῖς *PSAAthen.* 35.6 (nom.), 18 (acc.), 21 (dat. !) (A.D. 153/4); (nom.) *SB* 9415 (4).2 part. rest. (3rd cent.); *SB* 9467.2 (A.D. 261); *StudPal.* viii, 838.1 (6th cent.); (acc.) *PFlor.* 127.15 (A.D. 256)

Note 2. Latin *ĕ* is occasionally transcribed by ι in several loanwords:[1]

κομιάτοις *commeatus* *POxy.* 2425 iii.9 (3rd/4th cent.)

cf. κομιᾶτον *PGM* 26.7 (late 3rd/early 4th cent.)

κομιατάλια (for κομμεαταλίων) *SB* 9613.1 part. rest., 6 abbrev., 13,14 (6th cent. ?)

but κομμεᾶτον *PMich.* 466.39 (A.D. 107)

κομεάτου *PGiss.* 41 = *WChr.* 18.4 (ca. A.D. 117); *POxy.* 1666.14 part. rest. (3rd cent.)

πρίγκιψ *princeps* (prob. a back formation from the stem of the oblique cases πριγκιπ-) *POxy.* 2228.21 (A.D. 285: *BL* v, 81); *POxy.* 1424.22 (ca. A.D. 318)

μάγκιψ *manceps PFlor.* 93 = *MChr.* 297.9 (A.D. 569); *PLond.* 1713.11 (A.D. 569)

ῥιπούδιον *repudium PLips.* 39 = *MChr.* 127.10 (A.D. 390)

but ῥεπούδιον elsewhere (for examples, see above, p. 219)

πικουλίῳ *peculium PCairMasp.* 314.20, corr. 29, etc. (6th cent.)

but πεκούλιον elsewhere (for examples, see above, p. 217)

δικρήτου *decretum PLond.* 1685.3 (6th cent.)

but δέκρητον *PLond.* 1674.45 (ca. A.D. 570); *PCairMasp.* 97 V D.87 (6th cent.)

κολλίκταρ *collector StudPal.* viii, 991.2 (6th cent.)

but κολλε(κτάριος) *StudPal.* xx, 145.11 (6th cent.); iii, 162 = xx, 203.1 (6th cent.); iii, 158.2 (6th cent.); etc.

κολλεκταρίου *PStrassb.* 35 A.11 (4th/5th cent.); *StudPal.* iii, 385.2 part. rest. (6th cent.); *PGrenf.* i, 69 = *StudPal.* viii, 737.6 (7th cent.)

βανιάτορ(ι) *balneator StudPal.* iii, 980.6 (6th cent.); sim. *PApoll.* 97 A.12 (A.D. 703-15)

2) ι > ε.

a) Before a back vowel:

ἐνδομενέα (for ἐνδομενία) *PMich.* 322a.20-21 (A.D. 46)

οἰκέας (for οἰκίας) *PMich.* 299.3,4, sim. 5, with οἰκεία 5 (1st cent.)

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[1] -*eum* is reg. rendered -ιον, e.g., ὁρρίου *SB* 4502.2 (Byz.); ὁρρίων *PLond.* 113 (5b) (i, 211-12).9 (A.D. 543); ὁρρίοις *POxy.* 2408.9 (A.D. 397); etc., but ὁρρέ(ου) *PRossGeorg.* v, 46 (1).2,3 (8th cent.).

πρασεάν (for πρασιάν) *BGU* 530.27-28 (1st cent.)
τοπαρχέας (for τοπαρχίας) *POxy.* 504.11 (early 2nd cent.)
κυρέας (for κυρίας) *PMich.* 196.26 (A.D. 122)
σεαγόνι (for σιαγόνι) *BGU* 153 part. = *MChr.* 261.17,35 (A.D. 152); *PRyl.* 88.28 abbrev. (A.D. 156)
ἀνδρεαντάρια (for ἀνδρι-) *PHermRees* 48.8 (5th cent.)

Note 1. ἔριον is sometimes spelled ἐρεο- in compounds. There is also a by-form ἐρέα. The adjective is normally spelled ἐρεοῦς.

1. In compounds:

ἐρεόξυλον *SB* 9025.31 (2nd cent.); sim. *SB* 9026.11,13,14 (2nd cent.); *PLond.* 928 (iii, 190-1).1 (2nd cent.); *PJand.* 142 ii.8 (A.D. 164/5+)
ἐρεοπώλης *POxy.* 1669.5 (3rd cent.)
ἐριοκάρτην *PMich.* 123 R III.9; XVII.35 (A.D. 45-47); sim. 223.3255 (A.D. 171-2); *PFlor.* 71.159 part. rest., 438 (4th cent.)
ἐριοραβδισταί *StudPal.* iv, p. 70.410 (A.D. 72/73); sim. *PBon.* 24a.8-9; b.16-17; c.11 (A.D. 135)
ἐριοπώλην *PMerton* 83.4,12 (late 2nd cent.); sim. *PErl.* 49.16 (3rd cent.); *PLips.* 14.6 (4th cent.); abbrev. *PMilVogl.* 52.3,70,97 (A.D. 138)
ἐριο(υργός) *PFouad* 68.16 (late 2nd cent.)
ἐριο⟦έμπο(ρος)⟧ *PErl.* 49.16 (3rd cent.)
ἐριογλαῦσιν *PJand.* 17.6 (6th/7th cent.)
so ἐριωκαίτης (for ἐριο-) *PTebt.* 401.1, sim. 16 (early 1st cent.); ἐρει[ό]ξυλα *PMich.* 500.7 (2nd cent.)
cf. ἐριεοπολῶν, ἐριεοκαρτ(ῶν) *PMich.* 222.1439,1488 (A.D. 172/3)

2. The simple noun:

ἐρέα *OMich.* 255.1 (late 3rd/early 4th cent.)
ἐρέας *PAntin.* 32.26,31 part. rest. (A.D. 339); *PSI* 36.3 (4th cent.); *PLond.* 1777.8 (A.D. 434); *PHermRees* 27.7 (5th cent.); *POxy.* 1840.8 (6th cent.); etc.; cf. *PColt* 89.38,40 (late 6th/early 7th cent.); sim. 176.4 (6th/7th cent.)
ἐραίας (= ἐρέας) *PLond.* 1695.17 (A.D. 531?); *PCairMasp.* 127.11 (A.D. 544); 53.8; 138 i R.3; 139 vi R.3 (6th cent.)
ἐρέαν *PFuadCrawford* 99.2 (Byz.)
ἐρεῶν *POxy.* 2593.12 (2nd cent.)
ἐρίου *POxy.* 1052.8 (4th cent.); *PLips.* 102 ii.5 (prob. late 4th cent.); sim. *PCairMasp.* 141 v R.16 (late 6th cent.)
ἔρια *PSI* 459.11 (A.D. 72); *PGiss.* 20 = *WChr.* 94.14 (early 2nd cent.); *PSI* 305.3; 313.4 (3rd/4th cent.)
ἐρίων *POxy.* 791 descr. (ca. A.D. 1); *BGU* 927 = *WChr.* 178.6 (late 3rd/early 4th cent.)

3. The adjective:

ἐρεᾶς *BGU* 1564.10 (A.D. 138); *POxy.* 2110.5,17,27,35 (A.D. 370)
ἐρεᾷ *BGU* 1210 (71).182; (75).187; (76).188 (mid 2nd cent.)
ἐρεοῦν *BGU* 928.21 (A.D. 311: *BL* iii, 15); sim. *PRossGeorg.* iii, 1.9 (3rd cent.); *PSI* 1082.13 (4th cent. ?); *PRossGeorg.* iii, 12.6 (6th cent.)
ἐρεᾶ *POxy.* 2474.3 (3nd cent.)
ἐρεῶν *SB* 9305.7 (4th cent.)
ἐρεαῖς *BGU* 16 = *WChr.* 114.12 (A.D. 159/60)
ἐρεᾶς *PFouad* 10.8 (A.D. 120)
ἐριοῦν *BGU* 816.18 (3rd cent.); sim. *PGissBibl.* 32.18 (3rd/4th cent.)

Note 2. The Latin loanword *legio* is sometimes transcribed λεγεών, but the usual spelling is λεγιών, and the derivative is normally λεγιωνάριος:

λεγεῶνος *BGU* 1104.34 abbrev. (8 B.C.); 1108.3 part. rest. (5 B.C.); *PSI* 1318 i.3 (A.D. 31); *POxy.* 2349.2,27 (A.D. 70); 276.9 (A.D. 77); *PMich.* 571.2,4,20 (A.D. 96-98 ?); *PSI* 447.4,14 (A.D. 167); *PGrenf.* ii, 74.2 (A.D. 302); etc.; cf. *SB* 1023.3,7, inscr. (A.D. 104/5)
λεγιῶνος *BGU* 802 xii.12 (A.D. 42); 455.4-5,10 (1st cent.); *PLond.* 142 (ii, 203-4).4,20 (A.D. 95); *BGU* 832.18 (A.D. 113); *BGU* 272 = *MChr.* 143.1 (A.D. 138/9); *PSI* 704.3 (2nd cent.); *SB* 7362.3,20 (A.D. 188); *PRyl.* 165.12 (A.D. 266); etc.
λεγειῶνος *BGU* 802 xiv.25 (A.D. 42); *BGU* 113 = *WChr.* 458.11 part. rest. (A.D. 143); sim. *PTebt.* 583 descr. (3rd cent.); etc.
λεγιωναρίου *BGU* 794.6 (2nd cent.)
λεγιωναρί(ῳ) *PCairGoodsp.* 30 xxxi.15 (A.D. 191-2)
λεγιωναρίων *POxy.* 1419.7 (A.D. 265)
λεγιωναρίοις *POxy.* 2794.1 (3rd cent.); *PLond.* 1254 (iii, 236-7).5, etc. abbrev. (4th cent.)
λεγειωνάρειος *PCairIsidor.* 83.19 (2nd half 3rd cent.)
but λεγεωνάρειοι *SB* 8247.2,12 (1st cent.)

b) Before a nasal:

Ἀρσενωείτου (for Ἀρσινοίτου) *PMich.* 310.3 (A.D. 26/27)
Μάξεμο[ς (for Μάξιμος) *BGU* 9 iv.6 (prob. late 3rd cent.)
ἕνα (for ἵνα) *PMeyer* 22.4 (3rd/4th cent.); *POxy.* 1874.14,18 (6th cent.)
συκαμενέας (for συκαμινέας) *PGrenf.* ii, 98 = *StudPal.* viii, 1156.2 (6th cent.)
cf. λέντιον *linteum* *POxy.* 929.10-11 (late 2nd/3rd cent.); *PSI* 971.18 (3rd/4th cent.); sim. *SB* 9746.16 (early 4th cent.); etc.

c) Before a sibilant:

ἡμεσίᾳ (for ἡμισείᾳ) *POxy.* 277.5,17 (19 B.C.)
ὕμεσον *PMich.* 258.3 (A.D. 32/33); sim. 398.12 (A.D. 207)

ἥμεσον *PMich.* 354.6 (A.D. 52)

ἥμεσυ *PMilVogl.* 83.7 (A.D. 134); *PMerton* 68.13,17 (A.D. 137); sim. *BGU* 86 = *MChr.* 306.37 (A.D. 155)

συνεχρημάτεσος (for -ισας) *PMich.* 354.5 (A.D. 52)

ληνές (for ληνίς) *PTebt.* 414.31 (2nd cent.)

ἀπαρτέζεσθαι (for -ίζεσθαι) *PMerton* 81.25 (2nd cent.)

μεμεσθώμεθα (for μεμισθ-) *POxy.* 500.27-28 (A.D. 130)

βαδεστικοῦ (for βαδιστικοῦ) *POxy.* 138.41 (7th cent.)

πεντακεσχιλίας (for πεντακισ-) *PCairMasp.* 286.10,17,21 (A.D. 527/8)

d) Before a liquid:

φελτάτοις (for φιλτάτοις) *POxy.* 60 = *WChr.* 43.3 (A.D. 323)

θεωφελία (for θεοφιλία) *BGU* 103 = *WChr.* 134.3 (6th/7th cent.)

Note. Latin *i* before *l* is sometimes transcribed by ε in several loanwords:

σελίγνια (*siligo*) *PRossGeorg.* ii, 41.76 (2nd cent.); *PMichael.* 125.2,5 (3rd cent. ?)

σελιγ(νίων) *POxy.* 2423 R i.4; ii.1 (2nd/3rd cent.); (in full) *PMerton* 85.9-10 (mid 3rd cent.)

but σιλιγνίων *POxy.* 1655.8,9 (3rd cent.); sim. *StudPal.* viii, 957.4; 985.2; 986.2 (5th/6th cent.); 1169.3 (6th cent.); *StudPal.* xx, 233.1 (6th/7th cent.)

σιλίγν(ια) *POxy.* 2046.8,13,16 (late 6th cent.); cf. σιλλίγνια *PColt* 166.7 (6th/7th cent.)

σιλιγναρίου *SB* 4893.3 abbrev. (Byz.); *PApoll.* 97 E.11 (A.D. 703-15); etc.

οὐεξελλ[ατίωνος] *vexillatio* *BGU* 316 = *MChr.* 271.5 (A.D. 359)

cf. οὐηξιλλ(ατίωνος) *BGU* 600.13 (A.D. 120-40: *BL* i, 55); *SB* 1588.2 abbrev., inscr. (Rom.); etc.

οὐηξιλλάριος *vexillarius* *SB* 8810.10, inscr. (A.D. 216)

but οὐιξιλλατίωνος *PGen.* 79 = *PAbinn.* 42.12 (ca. A.D. 346); *PCairPreis.* 39.3 (A.D. 347); etc.

cf. οὐιξιλ[λαρίων] *PStrassb.* 131 = *SB* 8013.3-4 (A.D. 363)

νοβελλησίμου *nobilissimus* *SB* 8986.6 (A.D. 640/1)

σιγελλίου *sigillum* *PSI* 1266.4, etc. = *PApoll.* 9.5, etc. (before A.D. 704)

σιγέλλου *PLond.* 1419.1328 (A.D. 716+)

but σιγιλλίου *PLond.* 1384.51 (A.D. 710 ?)

σιγιλλίῳ *PLond.* 32 = *WChr.* 24.8 (early 8th cent.)

σιγίλλιν *SB* 7240.13,16, sim. 21 (A.D. 697/712)

3) In other positions:

ἐδού (for ἰδού) *POxy.* 528.24 (2nd cent.)

ἐκθυοπώλι (for ἰχθυοπώλης) *BGU* 344 i.42 (2nd/3rd cent.)

σετικάς (for σιτικαί) *PStrassb.* 192.6 (A.D. 207)

περέ (for περί) *PJand.* 101.9 (5th/6th cent.)
ἐπέθεσιν (for ἐπίθεσιν) *PSI* 872.4 (6th cent.)

Note. The transcription of Latin *i* in other positions also fluctuates between ε and ι in some loanwords and names; in others, ε is used exclusively:

κόμε(τος) *comitis POxy.* 2197.68 (6th cent.); *StudPal.* viii, 1065.1 (Byz.)
κόμετι *POxy.* 1982.4 (A.D. 497); 1833.7 (late 5th cent.); *PRossGeorg.* iii 43.2 (6th cent.); *PErl.* 67.4 abbrev. (A.D. 590); *PLond.* 871 (iii, 269).4 (A.D. 603); *PLond.* 113 (6b) = *MChr.* 147.9 (A.D. 633); etc.
but κόμιτος *PPrinc.* 81.3 (A.D. 344); *PAntin.* 31.18 (A.D. 347); *BGU* 1092.3 (A.D. 372); *PLips.* 39 = *MChr.* 127.9 (A.D. 390); *PGrenf.* ii, 98 = *StudPal.* viii, 1156.1 (6th cent.); *PFlor.* 359.11 (6th cent.); *PSI* 887.12 (6th cent.); *PLond.* 1309 (iii, 251).1 (6th/7th cent.); etc.
κόμιτι *POxy.* 1163.4,10 (5th cent.); *PRossGeorg.* v, 30 R. 1,2; V.9 (A.D. 449-64); *SB* 5273.2, sim. 15 (A.D. 487)
κόμειτει *PGen.* 55 = *PAbinn.* 30.14 (ca. A.D. 346)
κομίτων *POxy.* 43 R ii.17, etc. (A.D. 295)
πρίνκεπος *principis PSI* 1114.2 (A.D. 454); sim. *BGU* 140.9 (1st/2nd cent.)
but πρίνκιπος *PHamb.* 9.5 (A.D. 143-6); sim. *SB* 7345.7 (prob. 2nd half 3rd cent.); *POxy.* 1637.10 (A.D. 257-9); *POxy.* 1880.3; 1881.3 (A.D. 427); etc.
πρίγκιπι *PFlor.* 278 v.3 (A.D. 248 ?); *POxy.* 2144.15 (late 3rd cent.); *POxy.* 1722.1 part. rest. (late 3rd/early 4th cent.)
πρίγκιπα *POxy.* 1108.3 (late 6th/7th cent.)
πρινκιπαρίῳ *BGU* 931.1 (prob. 3rd/4th cent.)
Δομετιανοῦ *OTait* 985.5 (A.D. 82); sim. *WO* 32.2 (A.D. 83/84); 33.4 (A.D. 84); *OTait* 1058.4 (A.D. 90 ?); etc.
Δομεττιανοῦ *BGU* 1615.2 (A.D. 84); *OStrassb.* 426.2 (A.D. 86); *PLond.* 285(ii, 201).13 part. rest. (A.D. 90); *OBrüss-Berl.* 33.4 (A.D. 116); etc.
cf. Δομεττ[ί]ῳ *BGU* 328 i.31 (A.D. 138/9)
but Δομιτιανοῦ *OTheb.* 47.4 (A.D. 82); *WO* 34.3 (A.D. 84/85); *OStrassb.* 98.3 (A.D. 85/86); *OBrüss-Berl.* 30.2 (A.D. 88); *PStrassb.* 321.5 (A.D. 93/94); *PLond.* 142 (ii, 203-4).1,10,23 (A.D. 95); etc.
Δομιττιανοῦ *OWilb-Brk.* 7.3 (A.D. 83/84); *OBrüss-Berl.* 29.2 (A.D. 83/84); *PMichael.* 24.35 (A.D. 296)
Δομητειανοῦ{ς} *OTait* 1057.6 (A.D. 84)
Δομητιανοῦ *OStrassb.* 126.2 (A.D. 89); *WO* 39.2 (A.D. 92/93)
cf. Δομίτιος *OWilb-Brk.* 28.1 (A.D. 149); sim. Δο[μ]ιττίου *PFay.* 38.1 (late 3rd/4th cent.)
Βρεταννικοῦ *Britannicus POxy.* 716.27 (A.D. 186); *POxy.* 501.51 (A.D. 187); *PSI* 1228.3 (A.D. 188); *BGU* 578 = *MChr.* 227.16 (A.D. 189); etc.
Βρετανικοῦ *BGU* 920.37 (A.D. 180); *PSI* 1036.28 (A.D. 192)
Βρεταννεικοῦ *PRein.* 100.13 (A.D. 212-17)

Βρεταννικῶν *PTebt.* 313 = *WChr.* 86.22 (A.D. 210/11); *BGU* 98.28 (A.D. 211); *PLond.* 349 (ii, 114-15).2 (A.D. 211/12); *PThead.* 2.2 (A.D. 305); etc.

b. ε × ει.

1) ε > ει.

a) Before a back vowel:

νείου (for νέου) *PSI* 1028.1,2,10 (A.D. 15)
εἱατῆς (for ἑαυτῆς) *PRyl.* 160c, ii.33 (A.D. 32)
βραχεία (for βραχέα) *PMerton* 12.11 (A.D. 58)
εἱορτῆς (for ἑορτῆς) *PFay.* 118.16 (A.D. 110); sim. *POxy.* 1297.11-12 (4th cent.)

Note. πλεο- is the normal spelling in compounds, as in the Ptolemaic papyri;[1] a possible exception is πλειο(νασμάτων) *POxy.* 2480.124 (prob. A.D. 565/6).

b) Before a nasal:

πείμπις (for πέμπεις) *PMich.* 201.17 (A.D. 99)
ἐκξένειγκον (for ἐξένεγκον) *PFay.* 138 = *WChr.* 95.3 (1st/2nd cent.)
πεπρακεῖναι (for πεπρακέναι) *POxy.* 68 = *MChr.* 228.21 (A.D. 131)
εἰν (for ἐν) *SB* 7572.11 (prob. 1st half 2nd cent.)
εἴμηνεν (for ἔμεινεν) *SB* 7248 = *PMich.* 216.31 (A.D. 296)

c) Before σ/ς:

γίτονεις (for γείτονες) *PHermRees* 62.4 (5th cent.)
ἀρκεισθῆναι (for ἀρκεσθῆναι) *PHermRees* 67.16 (6th cent.)
cf. Μεισορή (for Μεσορή) *SB* 6001.13 (A.D. 179)

Note. ἑστία and its derivatives are sometimes spelled εἱστ-, phonetically equivalent to the dialectal ἱστ-, which is also found sporadically.[2]

εἱστιαθήσαιται (for ἑστιαθήσεται) *PMich.* 244.18 (A.D. 43)
εἱστιῶ(ν) (for ἑστιῶν) *PMich.* 127 II.14; sim. III.8,12, with ἱστιῶν II.20,35; III.4 (A.D. 45-47)
εἱστιῶντες *PMich.* 127 IX.27; *PMich.* 128 I a.21 (A.D. 46-47)
Εἱστία *PMich.* 282.3, sim. 4, so duplic. *PSI* 917.6 (1st cent.)
εἱστιατορείας *PTebt.* 598 descr. (A.D. 176-91)
ἱστιάσεως *POxy.* 471.53 (2nd cent.)
ἱστιατορίας *POslo* 143.5 (1st cent.); *PSI* 1151.12; 1152.6 (1st half 2nd cent.); sim. *PTebt.* 584 descr. (A.D. 153); etc.
ἑστιάτωσαν *PMich.* 243.10,11 (A.D. 14-37)

[1] Mayser i², 1, 57; i², 3, s.vv. For πλέον/πλεῖον, etc., see Morphology II E 2.
[2] ἱστ- is Ion. Boeot. Locr. Rhod. etc. (*LSJ*, s.v. ἑστία).

ἑστίας *PGiss.* 3 = *WChr.* 491.7 (A.D. 117); *SB* 8253 = *POslo* 77.13 (2nd cent.); *PRyl.* 624.27 (A.D. 317-23); *PLips.* 41 R = *MChr.* 300.10 part. rest. (2nd half 4th cent.); *MChr.* 71.6 (A.D. 462)
ἑστίαν *PGrenf.* ii, 78 = *MChr.* 63.10 part. rest. (A.D. 307); *PLips.* 39 = *MChr.* 127.11 (A.D. 390); sim. *StudPal.* i, p. 8, iii.7 (A.D. 480)

d) Before a liquid:

γειρδ(ιακοῦ) (for γερδιακοῦ) *SB* 9237.3,7 (A.D. 144-9)
χειρσί (for χερσί, prob. by analogical levelling with χειρ-) *SB* 5114.51 (A.D. 613-40)

e) In other positions:

μει (for με) *PMich.* 249.5 (A.D. 18)
μείχρι (for μέχρι) *PSI* 905.11 (A.D. 26/27)
ὥστει (for ὥστε) *PMich.* 259.22 (A.D. 33)
δεί (for δέ) *PMich.* 272.9 (A.D. 45/46)
ποιήσειτε (for ποιήσετε) *POxy.* 58 = *WChr.* 378.23-24 (A.D. 288)
δεικάτης (for δεκάτης) *PPrinc.* 92.2 (6th/7th cent.)

2) ει > ε.

a) Before a back vowel:

Ἀλεξανδρέᾳ (for -δρείᾳ) *POxy.* 744.4-5,6 (1 B.C.); sim. *POxy.* 1291.9-10 (A.D. 30)
Θεαδελφέᾳ (for -φείᾳ) *PMed.* 4.12 (A.D. 2); sim. *PSI* 57.5 (A.D. 52)
σημέου (for σημείου) *POxy.* 293.6 (A.D. 27)
σημέας *SB* 7356 = *PMich.* 203.12 (A.D. 98-117)
σημεώσεω(ς) *POxy.* 269 i.20 (A.D. 57)
σημεαφ[όρο]υ *PMich.* 466.6-7 (A.D. 107); sim. *PSI* 1063.1 (A.D. 117); *PMich.* 485 V (2nd cent.)
χρέαν (for χρείαν) *POxy.* 1292.11 (ca. A.D. 30); *SB* 9017 (8).16 (1st/2nd cent.); *WChr.* 28.20 (A.D. 159)
χρέα *POxy.* 2836.19 (A.D. 50); *PSI* 1100.23 (A.D. 161); *PSI* 1075.4 (A.D. 458)
χρεακοῖς *BGU* 14 ii.9 (A.D. 255)
ἀργαλε͂α (for ἐργαλεῖα) *PRyl.* 138.20 (A.D. 34)
τροφέων (for τροφείων) *PMich.* 321.19 (A.D. 42)
μεσιτέας (for μεσιτείας) *PMich.* 123 ii.39; v.23 (A.D. 45-47); sim. *PMich.* 122 i.9,21,29; ii.10 (A.D. 49); *PMich.* 333-4.23, etc. (A.D. 52); *BGU* 68.13 (A.D. 113/14)
ξυλέας (for ξυλείας) *PBrem.* 48.23, corr. from ξυλείας! (A.D. 118)
γραφέο[υ] (for γραφείου) *BGU* 1045 = *MChr.* 282.4 (A.D. 154)
τέλεον (for τέλειον) *POxy.* 2997.13 (A.D. 214)
σιππε͂α (for σιππεῖα) *PSI* 1557.26 (3rd cent.)
στιππε͂α *PJand.* 132.5 (6th/7th cent.); *PLond.* 450 (ii, 334).3 (7th cent.)
θέου (for θείου) ὅρκου *POxy.* 893 = *MChr.* 99.4,5,8 (late 6th/7th cent.); sim. *SB* 5538.7, mummy label (n.d.)

b) Before a nasal:[1]

ἐμί (for εἰμί) *POxy.* 492.15,19, with εἰμεί 17 (A.D. 130); *SB* 7816 = *PSI* 1263.28 (A.D. 166/7)

c) Before σ/ς:

τρε̃ς (for τρεῖς) *WO* 695.3 (2nd/3rd cent.?)
ἐκ̣καλε̃σθαι (for -εῖσθαι) *POxy.* 1642.32 (A.D. 289)

Note. εἰς is the normal spelling in the papyri, but ἐς occurs occasionally, including in compounds, exclusively in ἔσωθεν:[2]

ἐς *BGU* 1055 = *MChr.* 104.21 (13 B.C.); *OTaitPetr.* 247.3 (ca. A.D. 14-37); *SB* 7032 = *PMich.* 187.28 (A.D. 75); *BGU* 1579.12 (A.D. 118/19); *POxy.* 34 V = *MChr.* 188 i.3, with εἰς also 3 (A.D. 127); *SB* 4127.7 (Xtn.: *BL* iii, 169); *PStrassb.* 41 = *MChr.* 93.28, with εἰς elsewh. (ca. A.D. 250); *PRossGeorg.* iii, 5.3, with εἰς 9 (3rd cent.); *POxy.* 2569.18 (A.D. 265); 1631.18 (A.D. 280); 939 = *WChr.* 128.11 (4th cent.); *PHarris* 159.2,3 (5th/6th cent.); *POxy.* 1165.6 (6th cent.); *SB* 4496.17 (A.D. 592); *PApoll.* 46.4 (A.D. 703-15); *SB* 4659 V (Arab.); etc.
ἐσ(άγων) *PRein.* 95.5,6 (A.D. 49)
ἐσῴκισ[εν *BGU* 1571.17 (A.D. 74/75)
ἐσαποστέλ̣λω *PRein.* 118.10-11 (late 3rd cent.)
ἐσῆλ[θε *PJand.* 13.13 (4th cent.)
ἐσιόντος *PLond.* 1766.11 (A.D. 559)
ἐσάπαξ *PHermRees* 51.3 (7th cent.)
ἔσω *BGU* 1127.9 (18 B.C.); 1141.33,36 (prob. 14/13 B.C.); *SB* 9379 = *PMilVogl.* 69 A.32,118 (2nd cent.); *POxy.* 2272.11 (2nd cent.); *PLBat.* i, 17.8 (3rd cent.); *SB* 9570.4 (late 4th/early 5th cent.); etc.
but εἴσω *PBeattyPanop.* 2.125,282,283 (A.D. 300); *SB* 9187.7; 9188.13 (A.D. 318); *PMichael.* 29.21 (4th cent.?); *PCairMasp.* 162.20 (A.D. 568); etc.
ἴσω *PPrinc.* 137.5 (5th/6th cent.); *PLond.* 1776.2: *BL* iii, 99 (6th/7th cent.)
ἐ[σ]ωτεριαίων *POxy.* 498.14,20-21 (2nd cent.)
ἐσωτέρ[α]ν *PLips.* 36 = *MChr.* 77.7 (A.D. 376/8); sim. *POxy.* 2195.164 (6th cent.)
ἠσωτέρα (nom. sg. fem.) *SB* 4755.23 (Byz.)

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[1] For the by-forms εἵνεκα, εἵνεκεν, see above, pp. 115-16.

[2] For ἔσοπτρον, etc., see below, p. 292. A sim. distribution is found in the Ptol. papp. (Mayser i[2], 1, 12). The mag. papp. have ἐς only in *PGM* 7.432 (3rd cent.), 13.865 (A.D. 346), 22b.27 (4th cent.), 4.2934 (4th cent.), 1.234,303,323 (late 4th/5th cent.), with εἰς elsewh. ἔσω prevailed in Ion. & old Att. prose (*LSJ*, s.v. εἴσω) and is used excl. in the NT (*BDF*, § 30.3). Atticists fluctuate in their usage: ἔσω J. Ael. D.C.; εἴσω Str. Ph.; ἐς almost excl. Ael. App. Arr. D.C. Philostr. Jun. (Schmid iii, 17-18; iv, 12, 579; Crönert, 112-13, & n. 1).

ἔσωθεν *PMichael.* 40.2 (mid 6th cent.); *PLond.* 1768.4 (6th cent.); *SB* 4880.3 (Byz.); *SB* 5255.2 (Byz.); *PLond.* 871 (iii, 269).15 (A.D. 603); *PGrenf.* ii, 100.8 (A.D. 683); cf. *SB* 5098.6-7, inscr. (prob. 3rd cent.)

d) Before a liquid:

χερός (for χειρός) *SB* 5243.6 (A.D. 7); *PMichMichael* 23.8 (A.D. 51/65); *PIFAO* i, 14.5 (A.D. 140); etc.

χεῖριν (for χεῖρα) *PYale* 77.11, with χεῖραν 15 (ca. A.D. 100); χέρα *BGU* 747 = *WChr.* 35 i.18 (A.D. 139); *SB* 7247 = *PMich.* 214.18 (A.D. 296)

χέραν *BGU* 423 = *WChr.* 480.16 (2nd cent.); *PLond.* 190 (ii, 253-5).8 (2nd cent.: *BL* iii, 92); *POxy.* 119.7 (2nd/3rd cent.); etc.

χερί *PMichael.* 45.4 (A.D. 540); *SB* 5331.1 (Byz.); cf. *PColt* 55.5-6 (1st hand), 13 (2nd hand) (A.D. 682 ?)

χέρας *POxy.* 114.11 (2nd/3rd cent.); sim. *POxy.* 1773.29-30 (3rd cent.)

χεροναξίου *WO* 78.2 (A.D. 107)

χερογραφ[ίαν *POxy.* 36 = *WChr.* 273 iii.2, with χειρός i.6 (2nd/early 3rd cent.)

χερικήν *PHamb.* 23.22 (A.D. 569); *PGiss.* 56.11 (6th cent.); etc.

σπέραι (for σπεῖραι) *PPrinc.* 147.12: *BASP* v, 10 (A.D. 87/88); *POxy.* 1685 = *PMerton* 17.21 (A.D. 158)

ὀφέλησε̣ (for ὠφείλησε or -σα) *PMich.* 473.32 (early 2nd cent.)

cf. ἐν ἐρήνῃ (for εἰρήνῃ) *SB* 7494.13, inscr. (Byz.)

Note. The Egyptian month name Μεχείρ is sometimes spelled Μεχέρ, e.g., *PMich.* 201.20 (A.D. 99); *WO* 1122.1 (early 3rd cent. ?); *PMerton* 88 xi.10 (A.D. 298-301); *OMich.* 521.6 (A.D. 311); cf. *SB* 707.3, inscr. (1st cent.); *SB* 6936.6, inscr. (A.D. 162/3).

e) In other positions:

ἐμ̣πεσέται (for -εῖται) *PVindobWorp* 12.7 (1st cent.)

παρ̣άδεξον (for παράδειξον) *WO* 1135.4 (A.D. 214); sim. *PAntin.* 107.2 (6th/7th cent.)

κλεδίν (for κλειδίον) *BGU* 775.5, sim. 10 (3rd cent.: *BL* i, 65)

cf. Ἐπέφ (for Ἐπείφ) *WO* 10.4 (A.D. 39)

c. αι × ι.

There is an occasional interchange of these symbols for /ε/ and /i/ in various phonetic conditions.

1) αι > ι:

εἰδένι (for εἰδέναι) *PMich.* 263.41 (A.D. 35/36)

γυνικεῖον (for γυναικεῖον) *POxy.* 493 = *MChr.* 307.18 (early 2nd cent.)

Χιρήμ(ων) (for Χαιρήμων) *PMich.* 374 i.3; sim. ii.12 (mid 2nd cent.)

σιρίο̣υ (for σιραίου) *PRyl.* 630-7.423 (A.D. 317-23)

κεφαλίου (for κεφαλαίου) *PCairMasp.* 126.71 (A.D. 541)

cf. Τριαν[οῦ] (for Τραιανοῦ) *PTebt.* 593 descr. (A.D. 115/16); sim. *PSI* 53.44, corr. elsewh. (A.D. 132/33)

2) ι > αι:

μυροπωλαικήν (for μυροπωλικήν) *PFay.* 93 = *WChr.* 317.6-7 (A.D. 161)
μαιτήγγαικα (for μετήγγικα) *POxy.* 2274.11 (3rd cent.)
δελματίκαια (for δελματίκια) *PRyl.* 627.11 (A.D. 317-23)
καινήσασα (for κινήσασα) *PThead.* 19.11: *BL* iii, 248 (A.D. 316-20: *JJP* ii, 60)
ἐπαί (for ἐπί) *POxy.* 2347.8 (A.D. 362)

d. αι × ει.

There is also an occasional interchange of these symbols for /ε/ and /i/ in various phonetic conditions.

1) αι > ει:

ὑγιείνειν (for ὑγιαίνειν) *PIFAO*, ii, 46.2 (1st cent.)
πρόκιτει (for πρόκειται) *BGU* 920.42 (A.D. 180)
Ἀπελλείου (for Ἀπελλαίου) *BGU* 1662.1 (A.D. 182)
χείριν (for χαίρειν) *PStrassb.* 35.2 (4th/5th cent.)
γλυκελείας (for γλυκελαίας) *PVindobWorp* 11.4 (6th cent.)

2) ει > αι:

σεσημαίωμαι (for σεσημείωμαι) *WO* 174.6 part. rest. (A.D. 140); sim. *WO* 213.6-7 (A.D. 147); 222.7 (A.D. 151)
πλαῖστ[α (for πλεῖστα) *POxy.* 528.2 (2nd cent.)
χαῖραν (for χεῖρα) *PIFAO* ii, 40.12 (3rd cent.)
τέλαιον (for τέλειον) *PMerton* 92.14 (A.D. 324)
θελήσαι (for θελήσει) *POxy.* 893 = *MChr.* 99.7 (late 6th/7th cent.)

Note 1. Ionic καταγαιος is more common than Attic καταγειος throughout the Roman and Byzantine periods:

καταγαίου *PLBat.* vi, 31.6 (A.D. 144); *PCairMasp.* 309.22 part. rest. (A.D. 569)
καταγαίῳ *PLond.* 1164 (iii, 154-67), c.11; e.8; f.11 (A.D. 212); *PFuad-Crawford* 23.15 (A.D. 283/4); *PLond.* 978 (iii, 232-4).8,10 (A.D. 331); *StudPal.* i, p. 7, ii.8 (A.D. 456); *PLond.* 1023 (iii, 267-8).9 (5th/6th cent.); *PLond.* 1768.6 (6th cent.); *PStrassb.* 248.7 (A.D. 560); *SB* 9153.23 (A.D. 596); *PErl.* 73.24 (A.D. 604); etc.
κατάγαια *POxy.* 903.4 (4th cent.)
καταγαίων *StudPal.* x, 259.2 (6th cent.)
κατάγεον (for κατάγαιον) *POxy.* 1105.9 (A.D. 81-96); sim. *PRein.* 43.9 (A.D. 102); *PFlor.* 50.97 (A.D. 268); *CPR* 19a.15 (early 4th cent.); *SB* 5344.15 (n.d.)

κατάγειον *POxy.* 75.19 (A.D. 129); *POxy.* 912.12 (A.D. 235); *PErl.* 76.15 (4th cent.)
κατάγιον (for κατάγειον) *PSI* 1112.22 (A.D. 231); *POxy.* 911.15 (A.D. 233/65); *POxy.* 1199.17 part. rest. (3rd cent.)
καταγείου *PLips.* 17.14 (A.D. 377)
καταγείῳ *StudPal.* xx, 67 R.1 (2nd/3rd cent.)
κατάγια (for κατάγεια) *PRyl.* 319 descr. (late 2nd/3rd cent.)

Note 2. ἔγγαιος is the normal spelling in the papyri:

ἐγγαίου *PMich.* 243.5 (A.D. 14-37)
ἐνγαίων *POxy.* 508.20,25 (A.D. 102); *POxy.* 105 = *MChr.* 303.6,11 (A.D. 117-37); *POxy.* 1634.14 (A.D. 222); *POxy.* 1268.16 (3rd cent.)
ἔνγαια *PHamb.* 60.21 (A.D. 90); sim. *PSI* 1258.29-30 (3rd cent.)
ἔ[γ]γεον (for ἔγγαιον) *POxy.* 1199.25 (3rd cent.)
ἔγγειος *SB* 9571.7-8 (A.D. 138-61) is a misspelling of ἔγγυος.

These interchanges of the symbols for /ε/ and /i/ occur, as elsewhere in the Koine,[1] mainly in specific phonetic conditions in which /ε/ was sometimes raised to /i/ or /i/ lowered to /ε/.[2] This indicates that the symbols ι, ει, ε, and η all represented the same sound, /i/ or /ε/, in the specific condition. This is corroborated by various spellings of the same word in the papyri. The spellings κυρίας, κυρείας, κυρέας reflect /kyrias/ (or /kyrjas/[3]), χρεία, χρία, χρέα, χρήα /kria/; ἑορτῆς, ἱορτῆς, εἱορτῆς /(h)iortis/ (or /(h)jortis/), νέου, νήου, νείου /niu/,

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[1] There is an occ. change of ε to ι and a freq. interchange of ε and ει before a back vowel in the Att. inscrr., esp. in the 2nd half of the 4th cent. B.C. (*MS*, 18, 40-47). This represented a raising and closing of /ε/ to /e/, a sound wh. was retained longer in this position in the Koine than elsewh. (cf. Schwyzer i, 193-4). In Asia Minor, there is little evidence for an interchange of these symbols exc. for fluctuation in dial. forms (Schweizer, 44-45, cf. 56-59; Nachmanson, 21-22). In the Ptol. papp., there is a freq. interchange of ε and ει before a back vowel, infreq. in other positions (Mayser i², 1, 41-44, 54-58), but the interchange of ε and ι is not freq., and most of the exx. are explainable by assimilation, parallel by-forms, analogy, or scribal error (i², 1, 45, 65-66). Mag. tablets show such spellings as ἀνενίνκαι for ἀνενέγκαι Audollent #9.6, Cnidus (2nd/1st cent. B.C.); ἕνα for ἵνα 163.12, Rome (n.d.); κάτεχι for κάτεχε 155a.2; 156.1,28-29, Rome (n.d.); ἐπεδίξι for ἐπιδείξει 16 i.5, sim. 12, Syria (3rd cent.).

[2] ε had a more closed sound before a back vowel than in other positions even in Att. and was freq. written ει, as θειός for θεός, as sts. in Ion.; in several other diall., incl. Boeot. Cypr. Cret. Lac. Heracl. Argol. Thess. and Lesb., ε in this position was freq. written ι (Buck, *GD*, § 9.1-11). Before ν, ε was freq. written ι in Arc. and Cypr., e.g., ἰν for ἐν and ptcs. in -μινος (Buck, *GD*, § 10; Lejeune, § 230). Before σ, an interchange of ε and ι is found occ. in dial. forms of the same word, e.g., Att. ἑστία, Ion. etc. ἱστία (influence of ἵστημι ?) (see p. 256, n. 2). Before or after ρ, ι is sts. changed to ε in Lesb. Thess. Boeot. and El. (Buck, *GD*, § 18; Lejeune, § 230). See further Schwyzer i, 182, 242, 274-6; Lejeune, § 227, 229-30. Occ. spellings in the Rom. and Byz. papp. wh. coincide w. ancient dial. varr. in the representation of the long closed /e/ arising from contr. or compensative lengthening, e.g., ἡμί, χηρός, are not inherited dial. forms.

[3] See below, pp. 302-3.

indicating that these various symbols all represented /i/ (or /j/) before a back vowel. Similarly, the spellings ἵνα, εἵνα, ἕνα, ἥνα reflect /hina/, εἰμί, ἰμί, ἡμί, ἐμί /imi/, μηχανή, μιχανή, μεχανή /mikhani/, μή, μί, μεί, μέ /mi/, indicating that these symbols represented /i/ before or after a nasal and/or in final position. The /i/ sound is also indicated before /s/. On the other hand, the spellings χειρός, χιρός, χερός, χηρός probably reflect /khεros/, καμήλων, καμίλων, καμείλων, καμέλων /kamεlon/, etc., because of the lowering effect of the following liquid. The occasional interchange of the symbols for /ε/ and /i/ in other positions, especially in unaccented syllables, probably reflects bilingual interference. Coptic (ϵ)ɪ and ϵ represented distinct phonemes which were found in opposition only when the concomitant features of quantity or stress also differed, i.e., /ε/ was short stressed or unstressed, /i/ was long stressed or an allophone of /ə/ unstressed.[1]

B. υ[2]

1. Interchange of υ (οι) and η.

a. υ × η.

This interchange occurs frequently in all phonetic conditions throughout the Roman and Byzantine periods.

1) υ > η.

a) In unaccented syllables:

ἡμῶν (for ὑμῶν) *PLond.* 139a (ii, 200-1).4,6 (A.D. 48); *BGU* 15 ii.3 (A.D. 197 ?); *SB* 9201.22 (A.D. 203); *PSI* 1248.4 (A.D. 235); *SB* 7247 = *PMich.* 214.29 (A.D. 296); *PHermRees* 5.16 (4th cent.); *POxy.* 144 = *MChr.* 343.4 (A.D. 580); *POxy.* 138.41 (A.D. 610-11); etc.

ἡμεῖς (for ὑμεῖς) *PLond.* 216 = *WChr.* 192.7, etc. (A.D. 94); *PMich.* 201.15 (A.D. 99); etc.

ἡμεῖν (for ὑμῖν) *POxy.* 46.27 (A.D. 100); *SB* 7251 = *PMich.* 219.9 (A.D. 296); *POxy.* 2729.17 (4th cent.); *PMich.* 611.8 (A.D. 412)

ἡμᾶς (for ὑμᾶς) *SB* 7562 = *PSI* 1241.6 (A.D. 159); *PPhil.* 35.2, sim. 8, etc. (late 2nd cent.); *POxy.* 1296.17,18 (3rd cent.); *PMich.* 611.16 (A.D. 412)

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[1] See Copt. vowel quadrilaterals below, pp. 332-3. Mayser (i, 80) also calls attention to the close phonetic relationship betw. /i/ and /ε/ in Copt. Schwyzer i, 181, and Thumb, *Hell.*, 138, attribute the interchange of ε and ι to Eg. influence. There is a freq. change of ϵ to (ϵ)ɪ in Copt., both in native words and Gr. loanwords and both in stressed and unstressed syll. (Worrell, 102).

[2] Schwyzer i, 181-4, 349-52; Lejeune, § 226; Buck, *GD*, § 22, 24; *MS*, 24, 28-30; Schweizer, 75-77; Nachmanson, 26-27; Hauser, 32-34; Rüsch, 32-38; Mayser i², 1, 46, 53-54, 80-82, 90-91; Crönert, 21-23, 104; Psaltes, 29, 49-53.

ἡπέρ (for ὑπέρ) *POxy.* 1145.3 (1st cent.); *POxy.* 2562.9 (A.D. 330+); *PMerton* 95.2,3 (5th cent.); *PLond.* 1731.41 (A.D. 585)
προσβητέρου (for πρεσβυτέρου) *StudPal.* xxii, 46.7 (1st cent.); sim. *StudPal.* viii, 1260.2 (6th cent.); cf. *SB* 241.5-6, inscr. (n.d.)
σηνάων (for συννάων) *StudPal.* xx, 14.14 (A.D. 188)
σημβῆ (for συμβῇ) *PGrenf.* i, 65.4 (6th/7th cent.)
ἡποδήματα (for ὑπο-) *OTait* 2002.4-5 (Rom.)
ἡποκάτω *PHermRees* 15.9 (late 4th/early 5th cent.)
ἡπογράψας *PLond.* 113 (1) (i, 199-204).82 (6th cent.)
ἀπέλησα (for ἀπέλυσα) *SB* 5748.14 (Xtn.); *PCairMasp.* 298.44,57,60 (6th cent.); *POxy.* 136 = *WChr.* 383.45 (A.D. 583); *SB* 5331.1 (Byz.); *BGU* 371.37-38 (Arab.); etc.
διάλησιν (for διάλυσιν) *PHermRees* 31.27, sim. 4,22,25 (6th cent.)
θηλουροῦ (for θυρουροῦ) *SB* 9509 = *PMed.* 77.4, sim. 9 (3rd cent.)
κηάθια (for κυάθια) *POxy.* 1289.10, sim. 13 (5th cent.)
θηκατέραν (for θυγατέρα) *PFouad* 82.12 (4th/5th cent.)
θηγατρί *StudPal.* iii, 127.1 (6th cent.)
[στ]ηπτηρίας (for στυπτηρίας) *POxy.* 1905.22 (late 4th/early 5th cent.)
γλυκητάτον (= γλυκυτάτων for γλυκυτάτοις) *POxy.* 1300.4 (5th cent.)
μαρτηρῶ (for μαρτυρῶ) *PAntin.* 42.32,34 (A.D. 542); *POxy.* 1901.86 (6th cent.); *SB* 8987.47 (A.D. 644-5); *BGU* 671.3 (Arab.); etc.
εὐτηχούσης (for εὐτυχούσης) *PLond.* 1766.11 (A.D. 559)
συντηχείας (for συντυχίας) *POxy.* 1860.5 (6th/7th cent.)

b) In accented syllables:

δήο (for δύο) *OTaitPetr.* 295.4,6,9 (ca. A.D. 6-50); *CPR* 21 = *StudPal.* xx, 31 ii.15, corr. 14 (A.D. 230)
ὀμνήομεν (for ὀμνύομεν) *PFouad* 19.8 (A.D. 53)
ἐλήπησεν (for ἐλύπησεν) *PSI* 895.3-4 (3rd/4th cent.)
σήν (for σύν) *StudPal.* xx, 107.5,6 (4th cent.); *PMichael.* 55.17 (A.D. 582-602)
αἰγεωθήτης (prob. for αἰγιοθύτης) *POxy.* 1136.3 (A.D. 420)
νῆν (for νῦν) *PSI* 66.18 (5th cent.?); *POxy.* 1990.16 (ca. A.D. 591 ?)
ἀπολῆσαι (for ἀπολῦσαι) *POxy.* 1831.13 (late 5th cent.); *POxy.* 1835.3, sim. 2 (late 5th/early 6th cent.); sim. *POxy.* 133.26 (A.D. 550); *SB* 4776.1,2 (Byz.)
διαλήσασθαι (for -λύσασθαι) *SB* 9683.16-17 (late 4th cent.)
ἀγροφήλακας (for -φύλακας) *POxy.* 1831.5, sim. 6 (late 5th cent.)
ἐγγήωμαι (for ἐγγύομαι) *PCairMasp.* 296.16 (A.D. 535)
ἐγγής (for ἐγγύς) *PGrenf.* i, 65.6 (6th/7th cent.)
ῥήμα (for ῥύμη) *PLond.* 991 (iii, 257-8).8 (6th cent.); sim. *PCairMasp.* 6 V.55,92 (6th cent.)
cf. ῥήσομαι (for ῥύσομαι) *POxy.* 1928.12, amulet (5th/6th cent.)
δήνατε (for δύναται) *SB* 6270.18 (6th/7th cent.)
cf. δήναμιν (for δύναμιν) *SB* 7505.2, inscr. (late 6th/7th cent.)
συγχήσεων (for συγχύσεων) *PApoll.* 67.8 (A.D. 703-15)

cf. διδήμης (for διδύμης) *PMich.* 153.10, astrol. (A.D. 431)
ἐμεγαλήνθη (for ἐμεγαλύνθη) *POxy.* 1927.2,4 part. rest., liturgical frag. (5th/6th cent.)
ἁγιωσήνην (for ἁγιωσύνην) *SB* 7494.11, inscr. (late 6th/7th cent.)

2) η > υ.

a) In unaccented syllables:

ὑμῖν (for ἡμῖν) *PMich.* 293.2 (A.D. 14-37); *PMich.* 121 R III vii.3 (A.D. 42)
ὑμεῖς (for ἡμεῖς) *SB* 7174 = *PMich.* 233.19 (A.D. 24: *BL* v, 69)
ὑμῶν (for ἡμῶν) *PMich.* 202.19 (A.D. 105); *BGU* 1675.14 (prob. 2nd cent.); *PLBat.* xi, 1 i.9 (A.D. 338); *POxy.* 1126.16 (5th cent.); *SB* 10269.7 (6th cent.); *PSI* 1345.18 (6th/7th cent.)
ὑμᾶς (for ἡμᾶς) *PMich.* 518.7,11 (1st half 4th cent.)
ἀφυλίκων (for ἀφηλίκων) *PStrassb.* 515.8 (2nd cent.)
ὑνιώχου (for ἡνιόχου) *SB* 9330 V (3rd cent.)
ψυφιστίση (for ψηφισθείση) *POxy.* 55 = *WChr.* 196.12 AC (A.D. 283)
ξυρομύρου (for ξηρομύρου) *POxy.* 1142.2-3 (late 3rd cent.)
δυναρίων (for δηναρίων) *BGU* 940.20 (A.D. 398)
ὑ (for ἡ) *POxy.* 1059 = *PGMtn.* 6c.1 (5th cent.)
λυσστρικῶν (for ληστρικῶν) *POxy.* 1873.3 (late 5th cent.)
λογιστυρ(ίου) (for λογιστηρίου) *StudPal.* iii, 42.6 (6th cent.)
χ]ρηστυρίον (for χρηστηρίων) *PLBat.* xvi, 8.22 (A.D. 561)
ἐκκλυσίας (for ἐκκλησίας) *PLond.* 1734.25 (late 6th cent.)
ὡμολόγυσα (for ὡμολόγησα) *PAlex.* 34.9 (6th/7th cent.)

b) In accented syllables:

ὕμεσον (for ἥμισυ) *PMich.* 258.3 (A.D. 32/33); sim. *PMich.* 398.12 (A.D. 207); *POxy.* 1683.12 (late 4th cent.); *StudPal.* viii, 1269.4 (6th cent.)
ὗ (for ἧ) *SB* 7599.31 (A.D. 95)
ὀ[γ]δ<ο>ύκοντα (for ὀγδοήκοντα) *PJand.* 29.7 (A.D. 103/4)
ἡ ἀποχύ (for ἀποχή) *PMich.* 197.24 (A.D. 123)
μύ (for μή) *BGU* 153.38 (A.D. 152); *PHermRees* 17.2 (5th/6th cent.); cf. *SB* 3992.2, mummy label (n.d.)
ἐπιτηρητύς (for -τηρητής) *OStrassb.* 293.4: *BL* ii, 1, 29 (2nd/3rd cent.)
ἀβροχῦσαι (for ἀβροχῆσαι) *SB* 7361.17 (A.D. 210/11)
ὕ (for ἤ 'or' disjunctive) *POxy.* 1130.19, with χρύσει for χρήσει 27, etc. (A.D. 484)
Αὐρύλιος (for Αὐρήλιος) *SB* 5273.24 = *StudPal.* xx, 128.22 (A.D. 487)
σύν (for σήν) *POxy.* 1871.7 (late 5th cent.); *StudPal.* iii, 309.2 (6th cent.); 268.4 (7th cent.); *BGU* 29 = *StudPal.* iii, 117.3 (7th/8th cent.)
πῳλύση (for πωλήσῃ) *SB* 6266 = 6704.25 (A.D. 538); sim. *PVars.* 28.1,3 (6th cent.); *POxy.* 2480.105 (prob. A.D. 565/6)
διαθύκη (for διαθήκη) *POxy.* 1901.75 (6th cent.)
Ἐπισύμου (for Ἐπισήμου) *POxy.* 136 = *WChr.* 383.43 (A.D. 583)

ἐξῦς, δύλωσον (for ἐξῆς, δήλωσον) *SB* 6270.20,25 (6th/7th cent.)
νύσῳ (for νήσῳ) *PLond.* 1436.106 (A.D. 718-19)
cf. ἀγαθῦ (for ἀγαθῇ) τύχῃ *PSI* 23.31, corr. 1, horoscope (4th cent.)
εἰρή[νη] τῦ ψυχῦ (for τῇ ψυχῇ) *SB* 3905.1-2, inscr. (Xtn.)

Note. λάγηνος, etc., is a late and rare spelling of λάγυνος and derivatives:[1]

λαγῆνιν (for -ιον) *PBerlZill.* 7.25 (A.D. 574)
λάγηνον *SB* 9295.15 (6th cent.)
λαγή(νων) *PLond.* 1433.417 (A.D. 706-7); 1434.110 (A.D. 714-15: *BL* v, 56)
λαγύνιον *BGU* 1095.17, with λαγύνου 19 (A.D. 57); etc.
λαγυνίων *PSI* 1418.9 (3rd cent.); sim. *StudPal.* iii, 25.3 (6th/7th cent.)
λαγύνη[α *StudPal.* viii, 1204.6 (7th cent.)
λάγυνοι *POxy.* 1294.6 (late 2nd/early 3rd cent.); etc.
λαγύνων *PRein.* 101.5 (A.D. 198-209); *PFay.* 104.1 (late 3rd cent.)
λαγύν[ο]υς *PMich.* 501.19 (2nd cent.); sim. *PSI* 829.23-24 (4th cent. ?)
cf. λαγιν (for λάγυνον or -ιον ?) *POxy.* 2425 ii.3 (3rd/4th cent.)
λάγι(νος) *PApoll.* 93 A.13; B.5; C.14-15 (A.D. 703-15)
λαγοίνια *PHermRees* 23.5,6 part. rest. (4th cent.); sim. *BGU* 377.9 (7th/8th cent.)

b. οι × η.

There is an occasional interchange of η with οι, the phonetic equivalent of υ.[2]

1) οι > η.

a) In unaccented syllables:

μη (for μοι) *POslo* 47.18 (A.D. 1); *POxy.* 1300.5,6 (5th cent.)
ση (for σοι) *PAlex.* 34.7 (6th/7th cent.)
ἡ (for οἱ) *PThead.* 25.8 (A.D. 334); *POxy.* 1831.2 (late 5th cent.)
ἤδη (for ἤτοι) *POxy.* 2729.29-30 five times (4th cent.)
σὺν χρηστηρίης πᾶση (for -ίοις πᾶσι) *PSI* 707.10,12 (A.D. 351)
στη[χῖ (for στοιχεῖ) *PHermRees* 40.5 (early 6th cent.); sim. *PLond.* 1747.4 (6th/7th cent.); 1746.3 (Arab.)
ἀμφότερη (for ἀμφότεροϊ) *StudPal.* iii, 328.3 (6th cent.)
ἡγουμένης (for οἰκουμένης) *SB* 4669.18 (A.D. 614)
cf. ἐκηϊμήθϊ (for ἐκοιμήθη) *SB* 3915.1-2, inscr. (Xtn.); sim. *SB* 5826. 10-11, inscr. (A.D. 775)

[1] λάγηνος is a freq. v.l. arising prob. fr. Lat. *lagena* and admissible in later writers, e.g., Gal. (*LSJ*, s.v. λάγυνος).

[2] See above, pp. 197-9.

b) In accented syllables:

ἐτήμασον (for ἑτοίμασον) *OMeyer* 65.6 (3rd cent.)

ἑτήμως (for ἑτοίμως) *StudPal.* iii, 384.2 (5th/6th cent.); *POxy.* 1977.5 part. rest. (6th cent.); sim. *POxy.* 1897.3 (6th/7th cent.)

ἤκῳ (for οἴκῳ) *PFouad* 82.7 (4th/5th cent.); sim. *PHarris* 154.2 (5th/6th cent.); *SB* 9593.14 (6th/7th cent.)

ἦδας (for οἶδας) *SB* 9158.8 (5th cent.)

πλήου (for πλοίου) *PHermRees* 75.2 (5th cent.)

τῆς (for τοῖς) *PLond.* 1695.6 (A.D. 531?); *POxy.* 136 = *WChr.* 383.36 (A.D. 583); cf. *PPrinc.* 107.13-14, amulet (4th/5th cent.)

2) η > οι.

a) In unaccented syllables:

οἱ (for ἡ) *PMich.* 258.18 (A.D. 32/33)

ποιήσοι (for ποιήσῃς) *PMich.* 202.18 (A.D. 105)

μοὶ ἀμελήσοις (for μὴ ἀμελήσῃς) *PMich.* 516.9-10 (late 3rd cent.)

λοικύθιν (for ληκύθιον) *PSAAthen.* 66.8 (3rd cent.)

μενοιμάτων (for μενημάτων) *StudPal.* viii, 785.2 (5th/6th cent.)

λοιστρικ[ῷ] (for ληστρικῷ) *PCairMasp.* 91.10-11 (A.D. 528?)

προνοοιτ(ῇ) (for προνοητῇ) *StudPal.* viii, 1061.1 (6th cent.)

βούλοι (for βούλη) *SB* 9154.14; 9462.17 (6th/7th cent.)

ψεύδοι (for ψεύδη) *PApoll.* 61.10 (A.D. 703-15)

b) In accented syllables:

ὀγδοοίκοντα (for ὀγδοήκοντα) *SB* 10724.13-14 (3rd cent.); *OMich.* 1024.5 (early 4th cent.); *PMerton* 92.3 (A.D. 324); *PNYU* 5.29, sim. 28 (1st half 4th cent.)

οἴμυσου (for ἥμισυ) *SB* 5126 = *StudPal.* xx, 70.18 (A.D. 261); sim. *SB* 8092.20 (ca. A.D. 500)

μοί (for μή) *PMich.* 516.9 (late 3rd cent.); *POxy.* 1130.21 (A.D. 484); *PLond.* 1687.20 (A.D. 523)

τοῖς (for τῆς) *PMerton* 38.17 (mid 4th cent.); *PGrenf.* i, 65.5 (6th/7th cent.)

ἑξαμοίνου (for ἑξαμήνου) *POxy.* 1328 descr. (late 4th/5th cent.)

οἴκουσα (for ἤκουσα) *SB* 9137.4 (5th cent.)

οἴτο[ι (for ἤτοι) *StudPal.* iii, 108.2 (6th cent.)

ἐμοῖ (for ἐμῇ) *POxy.* 136 = *WChr.* 383.45 (A.D. 583)

σοίμερον (for σήμερον) *PYale inv.* 1773.4: *BASP* iv (1967), 38 (Byz.)

cf. ἐκοιμοίθοι (for ἐκοιμήθη) *SB* 3908.1, inscr. (Xtn.)

The inherited IE /u/ represented by υ was preserved in most of the classical dialects but was fronted to /y/ in Attic at an early period and sometimes palatalized [ju] in later Boeotian.[1] In the Koine, where the diphthong ου came to

[1] The fronting seems to have begun in E.Ion. by the 6th cent. B.C., spreading later to Att. and to W.Ion., paralleling the Att.-Ion. shift of /ā/ > /ē/ (ᾱ > η) (Schwyzer i, 181-4; Buck, *GD*, § 24).

represent /u/, υ apparently represented the Attic value /y/. This phoneme finally merged with /i/ about the ninth century A.D.[1] The above interchanges of υ and οι with η occur more frequently in the Byzantine than in the Roman period, as do the interchanges of υ and η with ι. This may indicate that the merger of /y/ (and /e/) with /i/ was complete in Egypt by the Byzantine period. But the interchange of υ (and οι) with η, especially during the Roman period, probably reflects the confusion of /y/ with the sounds represented by η /i~e~ε/[2] through bilingual interference, since Coptic had no rounded front vowel /y/ and had the sounds represented by н only in accented syllables.[3] This is supported by frequent examples of the interchange of υ and η in documents showing other evidence of Egyptian interference.[4] There is also an interchange of н and ϒ in Greek loanwords in Coptic.[5]

2. Interchange of υ (οι) and ι (ει).

a. υ × ι.

This interchange occurs occasionally throughout the Roman and Byzantine periods.

1) υ > ι.

a) In unaccented syllables:

ἥμισι (for ἥμισυ) *PMich.* 554.60 (A.D. 81-96); 526.12 (A.D. 155); *PCair-Isidor.* 41.104 (A.D. 312)
σινπεφω[ν]ημένη (for συν-) *SB* 8950 = *PSI* 1320.21 (A.D. 82-96)
σινόλη (for συνόλη) *PGen.* 54 = *PAbinn.* 35.23 (ca. A.D. 346)
ἱάλου (for ὑάλου) *PRossGeorg.* ii, 41.42 (2nd cent.); *PBon.* 38 A i. 15 (3rd/4th cent.)
νινεί (for νυνί) *PMich.* 492.14 (2nd cent.)
ἱπέρ (for ὑπέρ) *SB* 9784.7 (A.D. 219)
γλικυτάτην (for γλυκυτάτην) *POxy.* 123.21 (3rd/4th cent.)

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1 Schwyzer i, 183-4; Lejeune, § 226. Evidence for the unrounding of /y/ > /i/ is not found in the Att. inscrr. until the Byz. period, exc. for some few exx. on vases wh. may be at least partially explained by scribal error and in words in wh. assimilation or dissimilation takes place, e.g., ἥμυσυ (*MS*, 28-30; Kretschmer, *Vas.*, 119). In the Herc. papp., there is an interchange of υ and ι only in these same words (Crönert, 21-23). In the Ptol. papp., the only evidence for an itacistic pronunciation of υ is the occ. interchange of υ and η (Mayser i², 1, 53-54). The writers of *PDura* 31 (A.D. 204) substitute υ for ει and ι, e.g., ὑποχυρογραφηκότων for -χειρ- 2,27-28, κρύσεως for κρίσεως 18, 46, φύσκον for φίσκον 48, etc. Some transcriptions of υ into other languages suggest an itacistic pronunciation, e.g., Armenian *e* and *i* for υ (Thumb, *Hell.*, 139; Schwyzer i, 163).

2 See above, pp. 248-9.

3 See the Copt. vowel quadrilaterals below, pp. 332-3.

4 E.g., *StudPal.* xxii, 46 (1st cent.); *POxy.* 1835 (late 5th/early 6th cent.).

5 Kahle, VIII, § 36, 59; Böhlig, 102; Wessely, *Lehnwörter*, 7; Hopfner, 4.

κιρίου (for κυρίου) *PSI* 935.7 (5th/6th cent.)
πεπλιμ[έν]ας (for πεπλυμένας) *PLond.* 1695.18 (A.D. 531 ?)
κιαθίων (for κυαθίων) *PLond.* 1905 descr. (6th/7th cent.)
χρισοῦ (for χρυσοῦ) *PHermRees* 64.2,3, with παραμιθίας for παραμυθίας 4 (Arab.: *BL* v, 46)

b) In accented syllables:

'Οξυρίνχων (for 'Οξυρύγχων) *POxy.* 1114.20, sim. 26-27 (A.D. 237)
Εὐφροσίνην (for -σύνην) *PLond.* 951 V = *WChr.* 483.6 (3rd cent.)
συνχίσι (for συγχύσει) *PFlor.* 36 = *MChr.* 64.10 (A.D. 312)
δίναμ[αι (for δύναμαι) *PHermRees* 9.22 (4th cent.)
πρεσβί(τερος) (for πρεσβύτερος) *SB* 7758.38 (A.D. 497)
ἀλληλενγίο(υ) (for ἀλληλεγγύου) *PCairMasp.* 126.74 (A.D. 541)
σίστασις (for σύστασις) *PLond.* 1356 = *WChr.* 254.4 (A.D. 710)

Note 1. The older spellings βύβλος, etc., still occur occasionally in papyri of the Roman period, but the assimilated spellings βίβλος, etc., are usual.[1]

βύβλους *PVindobWorp* 24.6 (3rd/4th cent. ?)
βυβλίον *PGiss.* 85.14 (ca. A.D. 117)
βυβλία *BGU* 1148.31,35 (13 B.C.); 1152.24 (prob. 11/10 B.C.); *SB* 7346.6,14 part. rest. (A.D. 45); *BGU* 1096.7 (1st cent.: *BL* i, 96); *POxy.* 1479.3,6 (late 1st cent.); *PRyl.* 382.1 (early 2nd cent.); *OMich.* 1101.1 (2nd/3rd cent.); *PRossGeorg.* iii, 1.18 (A.D. 270: *BL* iii, 156); etc.
βυβλίοις *PRossGeorg.* ii, 11.11 (A.D. 20)
βυβλίδιον *BGU* 1671.5 (2nd cent.)
βυβλιοθή[κηι *SB* 5232.32-33 (A.D. 14/15); sim. *PMich.* 539.3 (A.D. 53); *SB* 3998.6 (A.D. 117-38)
βυβλιοφύλαξ *POxy.* 483 = *MChr.* 203.32 abbrev. (A.D. 108); *CPR* 17.41; 18 = *MChr.* 84.41 (A.D. 124)
βυβλιοφυλάκιον *PMich.* 179.17 (A.D. 64)
βυβλιοπώλης *POxy.* 2192.37, with βιβλίων 40 (2nd cent.)
βυβλιοκαταγογῖ (for -αγωγεῖ) *PSI* 1410.15 (2nd cent.)
cf. βυβλιαφόρος *SB* 10709 D.3; E.3; inscr. (4th/5th cent.)

Note 2. The classical στυπ- occurs only in στυ[π]έα *PMich.* 465.28 (A.D. 107). στιπ- is the normal spelling.[2]

[1] βιβλ- is found in Att. inscrr. from 403-180 B.C.; fr. the beg. of the 1st cent. B.C., βύβλος is again used (*MS*, 28). βυβλ- is the usual spelling in the Ptol. papp., with βιβλ- also occurring fr. the 2nd cent. B.C. on (Mayser i², 1, 80). See further Crönert, 21-22. βιβλ- is usual in the mag. papp.; βύβλῳ is found only in *PGM* 13.16 (A.D. 346). For the assimilation in these spellings beg. w. βιβλίον, see Schwyzer i, 256.

[2] For exx., see above, pp. 66-67. στυπ- is found in Hdt. X. D. etc. (*LSJ*, s.v. στυππεῖον). The στιπ- spellings prob. arose through metathesis in στιππύον for στυππεῖον. There are 5 exx. of στυπ- in the Ptol. papp. w. many more of στιπ- (Mayser i², 1, 81).

Note 3. The Attic ψιμύθιον is found only sporadically; ψιμίθιον is the normal spelling:[1]

ψ]ιμιθίου *PLond.* 928 (iii, 190-1).21 (2nd cent.); sim. *POxy.* 2570 iii a.12 (A.D. 329); *POxy.* 1922.1 (5th cent.); *PMichael.* 36 B.14 (Byz.)
perh. also ψιμίου *StudPal.* xx, 96.9 (4th cent.)
ψιμυθ[ί]ου *PLips.* 102 ii.2 (prob. late 4th cent.)

Note 4. The classical ἁλυκός fluctuates with ἁλικός, formed on the analogy of the adjectival suffix -ικός.[2]

ἁλυκῆς *BGU* 1069 V.9 (A.D. 243/4?); *POxy.* 2567.21 part. rest. (A.D. 253); *PLond.* 1393.36 (8th cent.); etc.
ἁλυκῶν *BGU* 14 iv.22 (A.D. 255)
ἁλικ(ῆς) *PFay.* 42a, ii.5 (late 2nd cent.); *SB* 9232 = *PMerton* 100.6, with ἁλυκ(ῆς) 3 (A.D. 699); *PApoll.* 93 A.8 (A.D. 703-15); etc.
cf. ἁλικά *PColt* 47.12 (before A.D. 605 ?)

2) ι > υ.

a) In unaccented syllables:

συαγόνι (for σιαγόνι) *PGen.* 29.8 (A.D. 137); *BGU* 100.5 (A.D. 159)
φυάλη (for φιάλη) *PLBat.* xvi, 30 i.4 (3rd cent.)
κυβαρί[ου (for κιβαρίου) *PRyl.* 630-7.210, corr. elsewh. (A.D. 317-23)
κρυθῶν (for κριθῶν) *StudPal.* iii, 461.1 (5th/6th cent.)
καταξυοῦσα (for καταξιοῦσα) *POxy.* 1872.2, corr. also 2 (late 5th/early 6th cent.)
σφυρυδ(ίων) (for σφυριδίων) *PAntin.* 202.3 (6th/7th cent.)
τυμίου (for τιμίου) *PLond.* 390 (ii, 332).2 (6th/7th cent.)
Χρυστοῦ (for Χριστοῦ) *StudPal.* iii, 355.1 (7th/8th cent.)
μυλιαρίσιν (for μιλιαρίσιον) *PLond.* 1380 = *WChr.* 285.19 (A.D. 710/11)

Note 1. Latin *i* is sometimes transcribed by υ:

λυβερν[οῦ *libernus* *BGU* 709.2 (A.D. 138-61)
Σεπτυμίου *Septimius* *BGU* 62.1: *BL* i, 14 (A.D. 199)
cf. Σεπτούμιος *SB* 1016.4-5, inscr. (A.D. 81)
παπυλίωνος *papilio* *SB* 7247 = *PMich.* 214.26-27; *SB* 7248 = *PMich.* 216.13 part. rest. (A.D. 296); sim. *SB* 1.3, etc. (3rd cent.); etc.
πυσκιν(ῶν) *piscina* *StudPal.* xx, 211.7 (5th/6th cent.)
συγγουλαρ(ίου) *singularius* prob. on analogy of συγ- *SB* 2254.5 (Byz.); for examples of the usual σιγγουλάριος, see above, p. 219.

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[1] ψιμύθιον Ar. Pl. X. etc. (*LSJ*, s.v.). ψιμίθιον is the only spelling attested in the Ptol. papp. (Mayser i², 1, 81).

[2] ἁλυκός Hp. Ar. Thphr. LXX, NT, etc. (*LSJ*, s.v.; *BDF*, § 35.3). ἁλικός, however, is used excl. in the Ptol. papp. (Mayser i², 1, 82).

Note 2. ἥμισυ, etc., is the normal spelling, but ἥμυσυ and orthographic variants sometimes occur:[1]

ἥμυσυ *PMich.* 304.3,7 (A.D. 42?); *SB* 9244.11,13 (A.D. 92); *PSarap.* 28.10,11 (A.D. 125); *OBrüss-Berl.* 53.5 (A.D. 138); *OWilb-Brk.* 60.5 (A.D. 138); *POxy.* 2588.13 (A.D. 148); *PSI* 1228.31 (A.D. 188); *PNYU* 18.21,22 (A.D. 312+); 5.54; 9.3 (1st half 4th cent.)
ἥμυσι *SB* 7663 = *PLBat.* i, 8.15 (A.D. 86); *PBeattyPanop.* 1.397 (A.D. 298); *POxy.* 1974.15 (A.D. 499)
ἥμυσου *OTaitPetr.* 245.7 (ca. A.D. 15-36); *BGU* 1675.25 (prob. 2nd cent.); *OTaitAsh.* 20.3 (A.D. 171?)
ἥμυσον *PMich.* 121 R II ii.5 (A.D. 42); *PMich.* 322a.10,11 (A.D. 46)
οἵμυσου *SB* 5126 = *StudPal.* xx, 70.18 (A.D. 261)
οἵμοισοι *SB* 8092.20 (ca. A.D. 500)

b) In accented syllables:

ἐρύφια (for ἐρίφια) *PThead.* 8.11 part. rest., 16,17,18,20 (A.D. 306)
σφυρύδιν (for σφυρίδιον) *POxy.* 1924.14 (5th/6th cent.)
κυρύο (for κυρίῳ) *POxy.* 1948.3 (early 6th cent.)
καυσύμων (for καυσίμων) *SB* 5303.6 (Byz.)
cf. ὕνα (for ἵνα) *PColt* 50.4,5 (early 7th cent.)

Note 1. The Latin loanword *indictio* is spelled ἰνδικτύωνος in *PVindobWorp* 8.47, cf. γυμνασυαρχήσαντος for γυμνασι- 41-42 (A.D. 317-40); sim. *SB* 5273 = *StudPal.* xx, 128.17 (A.D. 487); for examples of the usual spelling with ι, see above, p. 224.

Note 2. δίδυμος, etc., is the regular spelling in Roman and Byzantine papyri:[2]

διδύμῳ *PSarap.* 76.10 (early 2nd cent.)
δί[δ]υμα *SB* 5217.21 (A.D. 148)
διδύμους *PMich.* 169.3 (A.D. 145); sim. *POxy.* 533.15 (late 2nd/early 3rd cent.); *PLBat.* i, 21.66,71, mag. (3rd cent.)
cf. διδυμίων *SB* 1068, inscr. (n.d.)
διδυμαγενής *SB* 9554 (3).14,15 (A.D. 147); sim. *BGU* 26 = *BGU* 447.10 (A.D. 175); *PSI* 1104.9 (A.D. 175); *POxy.* 1119 = *WChr.* 397.26-27 (A.D. 253: *BL* i, 332)

Note 3. μαρσιπ- is the regular spelling; μαρσυπ- does not occur:[3]

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[1] ἥμυσυ is found in Att. and other inscrr. (*MS*, 28; *LSJ*, s.v. ἥμισυς) and predominates in the Ptol. papp. of the 3rd cent. B.C., but in the 2nd and 1st cent. B.C. it fluctuates w. ἥμισυ, which is normal on ostr. (Mayser i², 1, 81). See further Crönert, 22-23, nn. 1-2.

[2] For δυδίμη, δυδύμων, διδίμων, etc., in the Ptol. papp., see Mayser i², 1, 80-81.

[3] Cf. μαρσυπ- LXX, *Gloss.* Hsch. (*LSJ*, s.v.) and Lat. *marsup(p)ium*. μαρσιπ- alone occurs in the Ptol. papp. (Mayser i², 1, 82).

μάρσιπποι *OTaitPetr.* 295.6 (A.D. 6-50); sim. *SB* 9017 (18).8 (1st/2nd cent.); *PStrassb.* 311.2 (A.D. 123); *PTebt.* 337.23 (late 2nd/early 3rd cent.)

μαρσίππιν *SB* 4317.9 (ca. A.D. 200); *POxy.* 1670.11 (3rd cent.); *PHermRees* 13.4 (4th cent.)

Note 4. There is much variation in the spelling of the by-forms μόλιβος and μόλυβδος and their derivatives.[1]

1. The following spellings occur in the nouns and their derivatives:

μολίβου *PLond.* 1177 (iii, 180-90).301 part. rest., 306 (A.D. 113); *OTait* 1138.3 (A.D. 211/12 ?); *OTaitPetr.* 310.4 (A.D. 212 ?)

μολίβοις *PHarris* 79.8 (3rd cent. ?)

μολιβ(ουργός) *POxy.* 2412.32 (A.D. 28/29)

μολιβουργῷ *PRossGeorg.* v, 61 E, R.5 part. rest., A, V.6 (4th cent.)

μολιβουργ(οῦ) *POxy.* 915.1 (A.D. 572)

μόλυβον *PMich.* 312.35 (A.D. 34); *OTait* 1997.3 (2nd/3rd cent. ?)

μολυβουργός *WO* 1188.6 (Rom.); *POxy.* 1000 descr. (ca. A.D. 572); *POxy.* 135 = *WChr.* 384.8, sim. 32 (A.D. 579)

μολυβουργ(οῦ) *SB* 9368.4, sim. 5 (A.D. 577/8 or 592/3); *PLond.* 1028 (ii, 276-7).22 (7th cent.)

μολυβᾶτες *POxy.* 1517.12 (A.D. 272/8)

μ]ολίβδου *PErl.* 100.6 (2nd/3rd cent.)

μολίβδων *PFlor.* 384.10, sim. 40 (5th cent. ?)

μόλιβδον *PSI* 237.2 (5th/6th cent.)

μολιβδουργούς *PBrem.* 56 b.2 (ca. A.D. 117)

μολύβδ(ου) *SB* 9368.3,4 part. rest. (A.D. 577/8 or 592/3)

μολύβδων *PMon.* 4.13 (A.D. 581)

μολυβδ(ίνου) *PLond.* 1177 (iii, 180-90).333 (A.D. 113)

μολυβδ[ουργοῦ] *POxy.* 2098 introd. 1 (A.D. 267/8)

μολοιβ(δουργοῖς) *WO* 1485.6 part. rest., 17 (3rd/4th cent.)

μολήδου *POxy.* 915.2 (A.D. 572)

μοληβα( ) *StudPal.* iii, 700.3 (7th cent.)

2. The adjective is always μολιβοῦς or μολυβοῦς:

μολιβᾶ *PMich.* 312.13 (A.D. 34)

μολιβῆ *PLond.* 1823.9 (4th cent.)

μολυβοῦν *PAberd.* 181.10 (A.D. 41-69); *POxy.* 1648.62 (late 2nd cent.); *PTebt.* 406.22 (ca. A.D. 266)

b. οι × ι.

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[1] μόλιβος Ep.; μόλυβδος Simon. Hdt. Th. etc. (*LSJ*, s.vv.), prob. resulting fr. anaptyxis fr. *μολβ- (Schwyzer i, 278). μολυβδ- forms predominate in the Ptol. papp. (Mayser i², 1, 82). μόλιβον occurs in *PGM* 7.397 (3rd cent.), with μολυβοῦν *PGM* 5.304-5 (4th cent.) and μολιβοῦν *PGM* 10.37 (4th/5th cent.), etc. The MGr. form is μολίβι or βολίμι (Schwyzer i, 257).

1) οι > ι:

πλῖον (for πλοῖον) *OTait* 1741.2,5 (2nd cent.); *POxy.* 1871.3 (late 5th cent.); *PGot.* 17 V.13 (6th/7th cent.)
ἶδα (for οἶδα) *POslo* 18.3 (A.D. 162)
μι (for μοι) *SB* 8091.16 (3rd cent.)
ἐμί (for ἐμοί) *PThead.* 22.7 (A.D. 342)
σι (for σοι) *PSI* 1427.17 (A.D. 564)
βοηθῖς (for βοηθοῖς) *OMich.* 147.1 (3rd cent.)
ὁμίος (for ὁμοίως) *OOslo* 16.2 (3rd cent.)
λιπόν (for λοιπόν) *SB* 9621.3-4 (3rd cent.?)
πιῶ (for ποιῶ) *PLips.* 110.9 (ca. 3rd/4th cent.)
ἀνικοδομουμένις (for ἀνοικοδομουμένοις) *OFay.* 21.1, with κάστρις for κάστροις also 1 (A.D. 306)
ἐνικ(ίου) (for ἐνοικίου) *StudPal.* viii, 798.1 (6th cent.); sim. 795.2,7; 797.2; 800.2,3 (7th cent.)
ἐπικίου (for ἐποικίου) *POxy.* 2036.1, etc., 18 times, corr. 31,32 only (late 5th cent.); *StudPal.* x, 289.3 (7th cent.)
φινικίων (for φοινικίων) *POxy.* 1656.12 (late 4th/5th cent.)
στιχῖ (for στοιχεῖ) *PJand.* 37.23 (5th/6th cent.); sim. *PLBat.* xi, 14.8 (6th cent.); *StudPal.* iii, 77.11 (6th cent.); *POxy.* 1998.8,9 (6th cent.); *BGU* 371.35 (Arab.); etc.
ἶνον, ἴνου (for οἶνον, οἴνου) *PMich.* 608.9,11, corr. elsewh. (6th cent.)
ἑτίμως (for ἑτοίμως) *BGU* 404.11 (prob. Arab.)

2) ι > οι:

ὑκοίας (for οἰκίας) *PMich.* 249.2, with οἰκεία 3 (A.D. 18)
οἰκοίᾳ *SB* 4755.2,8, sim. 15-16,21,25, corr. 3,5 (Byz.)
οἱματίων (for ἱματίων) *PSI* 1116.19 (2nd cent.)
ἡλικοίᾳ (for ἡλικίᾳ) *PSI* 1159.21 (2nd cent.)
οἴσου (for ἴσου) *CPR* 193.2; 194.2 (A.D. 161)
οἴτω (for ἴτω) *POxy.* 1414.16: *BL* iii, 137 (A.D. 270-5)
Ἀπολλωνοιανῷ (for Ἀπολλωνιανῷ) *PBeattyPanop.* 2.269 (A.D. 300)
λοινοσπέρμου (for λινοσπέρμου) *PMich.* 521.17 (5th cent.)
οἰδού, οἵνα (for ἰδού, ἵνα) *PHarris* 154.4,5: *BL* iii, 82 (5th/6th cent.)
cf. οἵνα (for ἵνα) *PColt* 74.9 (ca. A.D. 685)

c. υ × ει.

1) υ > ει:

ὀμνείωμεν (for ὀμνύομεν) *PFouad* 18.12-13 (A.D. 53)
σεινασπάζου (for συν-) *PGissBibl.* 20.40 (1st half 2nd cent.)
σεί (for σύ) *SB* 7572.7 (prob. 1st half 2nd cent.)
θρείου (for θρύου) *PMerton* 123.5 (A.D. 151)
γλυκειτάτῳ (for γλυκυ-) *PVars.* 28.7 (6th cent.)
εἰπάγω (for ὑπάγω) *PJand.* 22.5 (A.D. 619-29); *PApoll.* 62.5 (A.D. 703-15)

2) ει > υ:

χυλός (for χειρός) *SB* 5110 = *PRyl.* 160d, ii.28 (A.D. 42)
πλύωι (for πλείω) *SB* 8030 = *PMich.* 245.27,29-30 (A.D. 47); sim. *SB* 9017 (28).8,9 (1st/2nd cent.)
ἀλύφαδος (for ἀλείφατος) *POxy.* 2134.29 (ca. A.D. 170)
ὗπον (for εἶπον) *PMich.* 510.25 (2nd/3rd cent.)
βοηθύᾳ (for βοηθείᾳ) *SB* 1575 (n.d.)

d. οι × ει.

1) οι > ει:

πείησον (for ποίησον) *PMerton* 63.14 (A.D. 57); sim. *POslo* 88.20, corr. 24-25 (late 4th cent.)
δίμειριν (for δίμοιρον) *SB* 6662.9 (4th cent.)
τοῖς εἰκίας (for τῆς οἰκίας) *PMerton* 38.17 (mid 4th cent.)

2) ει > οι:

σεσσημοί(ωμαι) (for σεσημείωμαι) *PNYU* 11a.67 (1st half 4th cent.); sim. *PMerton* 95.5 (5th cent.)
ἀποδώσοι (for -δώσει) *PLBat.* xi, 13.11 (A.D. 372)
οἰ (for εἰ) *POxy.* 1130.20, with μοί for μή 21 (A.D. 484)
στιχοῖ (for στοιχεῖ) *POxy.* 1998.8,9 (6th cent.)

These interchanges of the symbols for /y/ and /i/ possibly indicate the unrounding of the /y/ and its merger with /i/ at least in the Byzantine period.[1] But the relative infrequency of the examples suggests that /y/ and /i/ were confused by underdifferentiation of phonemes through bilingual interference, since Coptic had no /y/ sound. There is a parallel interchange of ι and ϒ in Greek loanwords in Coptic, though predominantly in Bohairic,[2] from which dialect area relatively few papyri come.

3. Interchange of υ (οι) and ε (αι).

These interchanges occur mainly in unaccented syllables. Examples in accented syllables occur almost exclusively before a back vowel, a nasal, or /s/, in which positions there was also an interchange of ε with ι and ει.[3]

a. υ × ε.

1) υ > ε:

ἑδρύσκ(ας) (for ὑδρίσκας) *PMich.* 121 R II ii.8; sim. III i.2,8; IV i.3 (A.D. 42)
σεντάξεως (for συν-) *POxy.* 1046.5 (A.D. 218/19)

[1] See above, p. 267.
[2] Kahle, VIII, § 59A, Böhlig, 100-2; Wessely, *Lehnwörter*, 7; Hopfner, 3; Crum, 70, 467.
[3] See above, pp. 249-59.

σενγραφῇ *PLond.* 1687.23 (A.D. 523); sim. *PCairMasp.* 128.36 (A.D. 547)

σενεδύσει, σενα[ρεσά]σῃς *PPar.* 21b.8,20 (A.D. 592)

ἐγυένον (for ὑγιαίνειν) *PMich.* 517.3-4 (3rd/4th cent.)

Ὀξυρεχίτῃ (for Ὀξυρυγχίτῃ) *POxy.* 1298.17 (4th cent.)

πέρεσιν (for πέρυσι) *PMich.* 160.16 (4th/5th cent.)

γενε̃κας (for γυναῖκας) *POxy.* 1835.2, etc., sim. 5 times (late 5th/early 6th cent.)

ἐγγεομένου (for ἐγγυωμένου) *PAntin.* 42.5, with ἠγγυειετοῦ 5, etc. (A.D. 542); *PGrenf.* ii, 86.14, with ἐγγυετοῦ for -ητοῦ 13 (A.D. 595)

γλεκετάτῳ (for γλυκυ-) *PPar.* 21b.7 (A.D. 592)

εὐτεχῶς (for εὐτυχῶς) *PMichael.* 127.2 (6th/7th cent.)

2) ε > υ:

δύσμας (for δέσμας) *PRyl.* 135.11 (A.D. 34); sim. *PFay.* 119.4,5 (ca. A.D. 100)

ἀλληλυνκῆς (for -εγγύης) *PMich.* 304.8 (A.D. 42?); sim. *PSI* 909.6 (A.D. 44); *PMerton* 68.5 (A.D. 137); *PSI* 961.33 (A.D. 176/8); *BGU* 217 i.11 (2nd/3rd cent.)

προσενενυχ(θέντων) *SB* 7260 = *PMich.* 121 R III vii.3 (A.D. 42)

ἀνανηνυγμένῃ (for ἀνενηνεγμένῃ) *PLond.* 1168 (iii, 135-8).28 (A.D. 44: *BL* i, 282)

προσδυομένων (for -δεομένων) *PMich.* 322a.31,42 (A.D. 46)

Πτολυμαίου (for Πτολεμαίου) *SB* 7031 = *PMich.* 186.41 (A.D. 72)

μετυώρου (for μετεώρου) *PFay.* 116.12 (A.D. 104)

μωνοδυσμίας (for μονοδεσμίας) *PTebt.* 572 descr. (2nd cent.)

Βρυντανικοῦ (for Βρεντανικοῦ) *StudPal.* xxii, 42.3 (A.D. 185)

ὑλέου (for ἐλαίου) *OOslo* 16.1 (3rd cent.)

θυμένου (for θεμένου) *PCairMasp.* 328 ix.31,33 (A.D. 521); *PLond.* 1716.16 (A.D. 570?)

πενθυρόν (for πενθερόν) *PSI* 964.25 (6th cent.)

cf. σήμυρον (for σήμερον) *SB* 4590.8, insc r. (n.d.); 8533.6, inscr. (Rom.)

b. οι × ε.[1]

1) οι > ε:

ἑ̃ς (for οἷς) *PMich.* 274-5.5 (A.D. 46/47)

φένικος (for φοίνικος) *WO* 272.5 (A.D. 179)

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[1] The interchange of με and μοι, σε and σοι, is prob. mainly the result of syntactical confusion of cases. Cf. με for μοι *POxy.* 929.5 (late 2nd/3rd cent.); *StudPal.* viii, 1179.5 (6th cent.); *POxy.* 1137.5 (A.D. 562-3); *PJand.* 20.4 (6th/7th cent.); etc.; σε for σοι *POxy.* 744.8 (1 B.C.); *POxy.* 119.4,5 (2nd/3rd cent.); μοι for με *PMich.* 351.35 (A.D. 44); *SB* 7356 = *PMich.* 203.17 (A.D. 98-117); *PLond.* 1881.5 (6th cent.); ἐμοί for ἐμέ *PMich.* 499.14 (2nd cent.); σοι for σε *SB* 7354.4,6 (early 2nd cent.); *BGU* 191.3 (A.D. 143); *BGU* 300 = *MChr.* 345.3 (A.D. 148); *SB* 7357 = *PMich.* 206.3,24 (2nd cent.); *BGU* 384.3 (2nd/3rd cent.); *PMich.* 209.18 (late 2nd/early 3rd cent.).

τοῖς πατρῴες (for -οις) θεοῖς *PMich.* 209.5-6 (late 2nd/early 3rd cent.)
πλέων (for πλοίων) *SB* 9436 i). 4 (4th cent.)
στεχῖ (for στοιχεῖ) *PHermRees* 75.4 (5th cent.); *PStrassb.* 287.7,8 (6th cent.); *SB* 9631.4 abbrev. (7th cent.)
δίκιε, ἑμαρτολέ (for δίκαιοι, ἁμαρτωλοί) *POxy.* 1874.12,13 (6th cent.)
δίμερο (for δίμοιρον) *PGrenf.* ii, 105 = *StudPal.* iii, 258.5 (ca. A.D. 719)
cf. ἐκεμήθη (for ἐκοιμήθη) *SB* 6179.4, inscr. (Xtn.)

2) ε > οι:

ἔχοιται (for ἔχετε) *BGU* 15 ii.24 (A.D. 197)
οἰκουσίῳ (for ἑκουσίῳ) *PLond.* 991 (iii, 257-8).4 (6th cent.)
ἐκοίνητω (for ἐγένετο) *SB* 5603 B.1 (A.D. 770-80: *BL* v, 97)
cf. σήμοιρον (for σήμερον) *SB* 8532.12, inscr. (Rom.)
cf. οἰκεμήθι (for ἐκοιμήθη) *SB* 6194.1-2; sim. 6195.2, inscr. (Xtn.); 8740.6, inscr. (A.D. 707)

c. υ (οι) × αι.

1) υ > αι:

προσκαίνημα (for προσκύνημα) *PStrassb.* 38.3 (2nd/3rd cent.)
καιρίου (for κυρίου) *POxy.* 1998.1,5,8 (6th cent.)
ἄκαιρων (for ἄκυρον) *StudPal.* iii, 134.6 (Byz.)
αἱός (for υἱοῦ) *SB* 5590.2 (A.D. 723: *BL* v, 96)

2) αι > υ:

Χυρήμωνος (for Χαιρήμονος) *POxy.* 1137.1 (A.D. 562-3)

3) αι > οι:

γυνοικείου (for γυναικείου) *SB* 1983 (6th cent.)

These interchanges of the symbols for /y/ and /ɛ/ occur mainly in unaccented syllables, suggesting that they reflect the reduction of unstressed vowels to /ə/. In terms of bilingual interference, Coptic had a strong stress accent, with consequent reduction of unstressed vowels.[1] There is also a parallel interchange of ⲩ and ⲉ in Greek loanwords in Coptic.[2]

C. BACK VOWELS[3]

1. Interchange of ω and ο.

This occurs very frequently in all phonetic conditions throughout the Roman and Byzantine periods.

[1] See below, p. 326.
[2] Kahle, VIII, § 5, 25; Böhlig, 102-3; Hopfner, 3; Crum, 50, 467.
[3] Schwyzer i, 180-1, 184-5, 338-46; Lejeune, § 223-5; Buck, *GD*, § 5-8, 12-13, 22-23; *MS*,

a. ω(ι) > ο:[1]

μέσο μετόπο (for μέσῳ μετώπῳ) *BGU* 911.5 (A.D. 18); sim. *PMich.* 251.38 (A.D. 19)

μέτρο τετάρτο (for μέτρῳ τετάρτῳ) *PMerton* 10.42-43 (A.D. 21); sim. *BGU* 1018.18,23 (3rd cent.)

τõ (for τῷ) *PMich.* 258.2 (A.D. 32/33); *POxy.* 1901.65 (2nd hand, with almost every ω > ο 21 times) (6th cent.)

λιστρικõ τρόπο (for ληστρικῷ τρόπῳ) *PRyl.* 135.7 (A.D. 34); sim. *PMich.* 230.6 (A.D. 48)

μικρõ (for μικρῷ) *BGU* 834.5,8,10,24 (A.D. 125)

λόγο (for λόγῳ) *PLBat.* xiii, 22.10 (2nd cent.)

ὄνο (for ὄνῳ) *PStrassb.* 250c.3-4 (2nd/3rd cent.)

ἔχο (for ἔχω) *PMich.* 123 R III.25 (A.D. 45-47); *PMich.* 230.7 (A.D. 48); *WO* 28.1 (A.D. 76); 60.4 (A.D. 99/100); *PCairIsidor.* 123.8 (A.D. 317)

ἀπέχο *PLond.* 154 (ii, 178-9).24 (A.D. 68)

ὁμολογõ *PMich.* 280.1 (1st cent.)

ὀμνύο *PHamb.* 4.2 (A.D. 87)

θαυμάζο, θέλο *PBaden* 35.6,8 (A.D. 87); ἐθέλο *PMich.* 473.8 (early 2nd cent.)

πέμπο *PAmh.* 132 = *PSarap.* 81.10 (early 2nd cent.); *PJand.* 12.10 (3rd/4th cent.)

ἐροτõ (for ἐρωτῶ) *PWürzb.* 21 A.11-12,18 (2nd cent.); ἐροτῶι *PBerlLeihg.* 10.3 (A.D. 120)

λέγο (for λέγω) *PLond.* 1889 R.12; V.3 (6th cent.)

κλαύσο (for κλαύσω) *POxy.* 1874.11 (6th cent.)

ἡμõν, αὐτõν, ἑαυτõν (for -ῶν) *PMich.* 282.1 (1st cent.)

αὐτõν (for αὐτῶν) *BGU* 910 ii.42 (A.D. 71: *BL* iii, 15)

τõν (for τῶν) *PBaden* 35.5 (A.D. 87); *PAmh.* 132 = *PSarap.* 81, above line 9 (early 2nd cent.)

ἀργυρικõν κεφαλαίον (for -ῶν, -ων) *POxy.* 68 = *MChr.* 228.10 (A.D. 131)

δραχμõν (for δραχμῶν) *BGU* 78 = 445.22 (A.D. 148/9)

ἡμõν *OMich.* 25.10 (A.D. 279); *PMich.* 573.18 (A.D. 316)

ὀβολõν *POxy.* 9 V.7 (3rd/early 4th cent.)

τõν κριθõν, αὐτõν ἀγραμμάτον ὄντον (all for -ων) *PLBat.* xiii, 15.21,25 (A.D. 435)

ἐπάνο (for ἐπάνω) *PPrinc.* 66.4 (1st cent.); *PMich.* 288-9.1 (1st cent.); *SB* 4755.3 (Byz.)

ὁς (for ὡς) *PMich.* 172.15 (A.D. 62); *BGU* 29 = *StudPal.* iii, 117.3 (7th/8th cent.); etc.

καθός (for καθώς) *SB* 7031 = *PMich.* 186.36 (A.D. 72); *BGU* 80 = *BGU* 446.26 (A.D. 169-77: *BL* iii, 13)

14-18, 21-26; Schweizer, 34-43, 68, 70, 95-96; Nachmanson, 18-19, 23-24, 27-31, 64; Hauser, 21-24, 29-30; Rüsch, 20-25, 29-61, 76; Mayser i², 1, 33-39, 44-46, 54, 70-76, 82-83, 116; Crönert, 19-20, 101-4; *BDF*, § 29.1-2,4, 42.2; Psaltes, 1-13, 20, 36-38, 118-24.

[1] For the identification of ωι w. ω, see above, pp. 183-6.

οὔπο (for οὔπω) *PBaden* 35.12 (A.D. 87); *PJand.* 9.10 (2nd cent.)
συμφονησάτο (for -φωνησάτω) *PFay.* 138 = *WChr.* 95.4 (1st/2nd cent.); προσφονοῦμεν *POxy.* 52.18 (A.D. 325)
ὀκτό (for ὀκτώ) *WO* 136.4 (A.D. 126); *PPrinc.* 57.8 (2nd cent.)
γενέσθο (for γενέσθω) *PMich.* 423-4.24 (A.D. 197)
ἐνεστõτος (for ἐνεστῶτος) *PSI* 1338.5 (A.D. 299)
πõς (for πῶς) *PMich.* 518.14, corr. 24 (1st half 4th cent.)
ἐγό (for ἐγώ) *BGU* 1035 = *WChr.* 23.11 (5th cent.)
καλõς (for καλῶς) *BGU* 103 = *WChr.* 134.9 (6th/7th cent.)
ἕος (for ἕως) *StudPal.* viii, 802.3 (7th cent.)

b. ο > ω:

Καίσαρως (for Καίσαρος) *WO* 365.3 (A.D. 25)
ἀπώ (for ἀπό) *WO* 1551.2 (A.D. 34); *SB* 8950 = *PSI* 1320.18 (A.D. 82-96); *BGU* 68.6,20 (A.D. 113/14)
ὑπώ (for ὑπό) *PMich.* 264-5.18 (A.D. 37)
διώ (for διό) *PMich.* 228.24 (A.D. 47); 229.30; 230.23 (A.D. 48)
ὥς (for ὅς) *PMich.* 353.10 (A.D. 48); 305.26; 308.1 (1st cent.)
ὡ (for ὁ) *BGU* 1615.18 (A.D. 84); *WO* 45.5 (A.D. 96/97); 64.5 (A.D. 101/2); 69.5 (A.D. 103); etc.
τεσσαράκωντα (for -κοντα) *BGU* 44.13 (A.D. 102); sim. *BGU* 68.14-15, 19-20 (A.D. 113/14)
δώς (for δός) *PMich.* 518.17 (1st half 4th cent.)
αὐτώς (for αὐτός) *PNYU* 11a.15,17; 13.16 (1st half 4th cent.)
υἱώς (for υἱός) *PThead.* 22.6 (A.D. 342)
τώ (for τό) *PNYU* 24.8 (A.D. 373)
μᾶλλων (for μᾶλλον) *POxy.* 2283.7 (A.D. 586)
ὥλας (for ὅλας) *POxy.* 1863.16, sim. 19 (7th cent.); sim. 1862.35 (7th cent.)

See further such documents as *POxy.* 1880, a petition of A.D. 427, in which there are nine examples of the interchange of ω and ο, while ει and ι are confused only a few times and αι and ε only once.

The confusion of ο and ω indicates that the sounds originally represented by these symbols became identified in /o/ after the loss of quantitative distinction.[1] This identification came about elsewhere in the Koine by the beginning of the Roman period.[2]

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[1] See below, p. 325.

[2] In the Att. inscrr., the interchange of ο and ω begins in the 3rd cent. B.C., but becomes freq. only fr. the time of Hadrian (*MS*, 24-26). It is found in Magnesian inscrr. fr. the beg. of the 2nd cent. B.C. (Nachmanson, 64), but at Pergamum generally only during the Rom. period (Schweizer, 95-96). In the Ptol. papp., it is rare in the 3rd cent. B.C. but very freq. fr. the beg. of the 2nd cent. B.C. in both accented and unaccented syll. wo. distinction (Mayser i², 1, 73-76). However, there is no confusion of ο and ω in the Herc. papp. (Crönert, 19-20). ο and ⲱ interchange in Gr. loanwords in Copt. (Böhlig, 91-92).

2. Interchange of α with ε and other front vowels.

a. Interchange of α and ε.

This occurs frequently, not only in unaccented syllables where vowel reduction or assimilation are possible factors, but in accented syllables as well, and in various other phonetic conditions, especially before /r/.

1) α > ε.

a) In forms of τέσσαρες, usually but not always before α in the following syllable:[1]

τέσσερα (for τέσσαρα) *BGU* 133.9 part. rest. (A.D. 144/5); *SB* 7247 = *PMich.* 214.23 (A.D. 296); *StudPal.* iii, 120.5, corr. 6 (6th cent.); *POxy.* 145 = *StudPal.* iii, 279.3 (A.D. 552); 148.2,3 (A.D. 556); 149.3, sim. 4 (A.D. 572); *PMerton* 46.2 (late 6th cent.)
τέσσερες *SB* 7375.7 (A.D. 222/35)
τεσέρων, τετέρτου, τέτερτον *PSI* 66.11,20,35 (5th cent?)
τέτερτον *PRyl.* 120.11 (A.D. 167)

δεκατέσερα *POxy.* 1645.17, corr. 8 (A.D. 308); sim. *PMich.* 521.16 (5th cent.)

τεσσεράκοντα *BGU* 68.16 (A.D. 113/14); *PMeyer* 12.12 (A.D. 115); *PRyl.* 163.20 (A.D. 139); *PFlor.* 1 = *MChr.* 243.4,5, etc. (A.D. 153); *PTebt.* 397 = *MChr.* 321.9-10, etc. (A.D. 198); *BGU* 1657.11,21,27, corr. 9,17 (A.D. 231); *PCairIsidor.* 68.13 (prob. A.D. 309/10); *PMich.* 611.13 (A.D. 412); *PLBat.* xiii, 16.17 (6th/7th cent.); etc.

b) In forms of (δι)δάσκαλος, etc:[2]

διδεσκαλικ(ῇ) *PMich.* 121 V XI.13, corr. II.12, XII.6 (A.D. 42); sim. 123 R II.34; III.9 (A.D. 45-47); 128 III.20 (A.D. 46-47); 240.40 (A.D. 46-47); *POxy.* 2971.39 (A.D. 66)

διδεσκάλῳ *PMich.* 170.10 (A.D. 49); sim. 171.14-15 (A.D. 58); 172.12 (A.D. 62); *POxy.* 2971.15,23 (A.D. 66)
γρα]μματοδιδεσκάλου *PMerton* 113.8 (2nd cent.)

δέσκαλος *PMich.* 123 R XXI.9 (A.D. 45-47); *BGU* 332.9-10 (2nd/3rd cent.)
[δ]ε̣σκάλην *PMich.* 464.10 (A.D. 99)
δέσκαλον *POxy.* 2595.9-10 (3rd cent.)
δέ<σ>καλε *PJand.* 101.5,8: Kapsomenakis, Ἀθηνᾶ 73-74 (1973), 571 (5th/6th cent.)

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[1] Ion. τέσσερες, τέσσερα (*LSJ*, s.v.), poss. arising through assimilation or dissimilation or change of unstressed α to ε (Hatzidakis, *Einl.*, 149-50; Thumb, *Hell.*, 72), is found in Asia Minor inscrr. (Schweizer, 163-4) and the NT (*BDF*, § 29.1), but only sporadically in the Ptol. papp. (Mayser i², 1, 34-35). MGr. has preserved the -ερ- spelling in τέσσερα /tesera/ along with τέσσαρα, while maintaining the /ar/ pronunciation and spelling in σαράντα /saranda/ 'forty' (Mirambel, *Gram.*, 107 & n. 1; Thumb, *Handbook*, § 127).

[2] Kapsomenakis, 121-2, adduces a MGr. survival of δέσκαλος in Pontos, but the normal MGr. form is (δι)δάσκαλος. The loss of δι- is part of the process wh. left MGr. generally wo. redupl. (cf. Jannaris, § 737).

c) In other words.

i. In unaccented syllables:

ἐγρανομίου (for ἀγορα-) *PLond.* 1168 (iii, 135-8).35 (A.D. 44: *BL* i, 282)
πάντε (for πάντα) *OTheb.* 126.3-4 (early 1st cent.)
ἐπιτέταχε (for -τέταχα) *PMich.* 348.33 (A.D. 27)
σ]υνεχώρησε (for -εχώρησα) *StudPal.* xxii, 43.30 (A.D. 151)
περαχορή(σεως) (for παραχωρήσεως) *PMich.* 128 III.13 (A.D. 46-47)
περεγένετο (for παρ-) *PLond.* 998 (iii, 243-4).6 (3rd cent.: *BL* i, 293)
περαγωγῆς (for παραγωγῆς) *POxy.* 2729.22-23 (4th cent.)
μακερεία (for μακαρία) *PMich.* 202.7 (A.D. 105)
χελάδριον (for χαλάδριον) *POxy.* 1142.13 (late 3rd cent.)
εὐμερῶς (for εὐμαρῶς) *PBeattyPanop.* 1.231,234,238, corr. 265, etc. (A.D. 298)
ἔγρεψα (for ἔγραψα) *POxy.* 1645.19 (A.D. 308)
συνεγομένους (for -αγομένους) *PHermRees* 57.4 (4th cent.)
κατεξίωσεν (for κατα-) *PSI* 889.6 (6th/7th cent.)
ἔνδεκε (for ἔνδεκα) *POxy.* 2000.10 (6th/7th cent.)

Note 1. There is a frequent change of α to ε in Egyptian personal and place names and in Latin loanwords, mainly in unaccented syllables and before /r/.[1]

Σεράπ[ι]δι *POxy.* 1149.2 (2nd cent.)
Σεράπιδος *PMich.* 211.4 (2nd/3rd cent.); 514.6,30 (god), with Σαρ- l (woman) (3rd cent.)
Σεραπίωνος *PMich.* 235.6 (A.D. 41); *PLeit.* 3.4 (ca. A.D. 313)
Σεραπάμμων *PLeit.* 5.37-38 (ca. A.D. 180); sim. *WO* 173.2 (A.D. 140); *BGU* 151.10 (Xtn.)
Φειλοσέραπις *PBeattyPanop.* 1.303 (A.D. 298)
Σεταβοῦ (for Σαταβοῦ) *PCairIsidor.* 20.25 (A.D. 314+)
Κερανίδος (for Καρανίδος) *OMich.* 202.3; 203.2; 204.3; 786.3; 1018.2-3; 1022.3 (early 4th cent.); etc.
ἑρμοκούστωρι *armicustos PHamb.* 88 V.3 (mid 2nd cent.); for ἀρμ- spellings, see above, p. 220, and add ἀρμι[κούστωρ *PMich.* 466.17 (A.D. 107)
ἑρμιγέρων *armiger POxy.* 1888.2 (A.D. 488)
πρεβέτοις *privatus BGU* 781 vi.7 (1st cent.); for examples of πριβατ-, see above, p. 69
cf. βικέριων *vicarius PColt* 134.3 (late 6th cent.)

[1] Σάραπις is the normal spelling in the Ptol. papp., only later the derivatives Σεραπιεῖον and Σεραπίων, never Σέραπις, Σεραπαμμῶν, etc. (Mayser i², 1, 33-34, & n. 2). Eckinger, 11, cites only 3 exx. of ε for Lat. *a*. For α for Lat. *e*, see below, pp. 283-4. For δερματίκιν, etc., see above, p. 106.

Note 2. ῥαφαν- sometimes appears as ῥεφαν-:[1]

ῥεφανίνου *PStrassb.* 299 V.11 (2nd cent.); *PMichael.* 18 iv.12,23 part. rest. (mid 3rd cent.: *BL* iv, 51); *BGU* 34 v.18,20,22 (1st half 4th cent.: *BL* v, 9); *PErl.* 111.12 abbrev., with ῥαφ(ανίνου) 2 (5th/6th cent.)
ῥαιφανίνου (= ῥεφ-) *PLond.* 1259 (iii, 239-40).23 (4th cent.); *PMich.* 613.4 (A.D. 415)
ῥεφαναιελαίου *POxy.* 155.8 (6th cent.); sim. *PApoll.* 93 A.10 (A.D. 703-15)
cf. ῥυφάνου *OTait* 972.2 (A.D. 34)
but ῥαφανίνου *BGU* 1097.14 (A.D. 41-69); *PMich.* 481.18-19 (early 2nd cent.); *PFay.* 96 = *WChr.* 313.17 (A.D. 143); *StudPal.* xxii, 177.33 (A.D. 137); *PSI* 683.32 (A.D. 199); *POxy.* 1275.18; 936.8 (3rd cent.); *PAntin.* 99.9 part. rest. (early 4th cent.); etc.
ῥαφάνου *POxy.* 1212.7 (2nd cent.); *PCairMasp.* 145.7 (6th cent.); *PLond.* 113 (10) = *WChr.* 8.15-16 part. rest. (A.D. 639-40)
ῥαφάνῳ, ῥαφανοσπέρμου *PPrinc.* 147 = *SB* 10532.12,14-15, sim. 24 (A.D. 87/88)
ῥαφανελαίου *PMich.* 508.15 part. rest. (2nd/3rd cent.); *PAntin.* 92.7 (4th/5th cent.); *StudPal.* x, 251 ii.7 part. rest., sim. 13 (6th cent.); *StudPal.* xx, 218.33 (7th cent.)

Note 3. ἀγγαρεία, etc., is sometimes written ἐγγαρ-, perhaps on the analogy of ἐγ-:[2]

ἐνγαρεύειν (for ἀγγαρεύειν) *PLond.* 1171 V c = *WChr.* 439.2 (A.D. 42)
ἐνγαρευθεῖσα *BGU* 1568.4, sim. 8 (A.D. 261)
ἐγγαρέας (for ἀγγαρείας: *BL* iv, 32) *PFuadCrawford* 6.6 (3rd cent. ?); sim. *StudPal.* xx, 75 i.21 (3rd/4th cent.); *BGU* 21 iii.16 (A.D. 340)
ἐνγαρείων *PRossGeorg.* ii, 18.148 (A.D. 140)
but ἀνγαρειῶν, ἀνγαρεύειν *SB* 8248.21,24 (A.D. 48-49)
ἀγγαρευομένων *SB* 3924.18 (A.D. 19); sim. *PGrenf.* ii, 95.2: *BL* i, 192 (6th/7th cent.)
ἀγγαρευθῶσι *SB* 7993 = *PSI* 1333.15 (3rd cent.)
ἀγγαρ(ίας) *StudPal.* viii, 1241.3 (6th/7th cent.); sim. *StudPal.* x, 295 V.1, etc. (7th/8th cent.); *PLond.* 1403.7 (A.D. 709-14); etc.
ἀγγαρίαν *PApoll.* 12.6 (A.D. 706)
ἀγγαρεῖαι *PLond.* 1356 = *WChr.* 254.11 (A.D. 710)
ἀγγαρ(ευταῖς) *PSI* 200.2 (A.D. 592); sim. *PCairMasp.* 325 i, V.16, etc. (A.D. 585+); *PJand.* 24.1 (6th/7th cent.); etc.

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[1] ῥέφανος (Ion. ?) Hp. *Gloss.* (*LSJ*, s.v. ῥάφανος). Only ῥαφαν- occurs in the Ptol. papp. (Mayser i², 1, 35).

[2] There are 2 exx. of ἐγγαρ- in the Ptol. papp., w. 4 exx. of ἀγγαρ- (Mayser i², 1, 37). ἐγγαρ- is also found in codd. of the NT (*BDF*, §42.2).

Note 4. λαψάνη[1] is sometimes spelled λεψάνη in Byzantine documents; the following forms occur:

λεψάνης *PLond.* 1771.10 (6th cent.); *PCairMasp.* 289.11 (6th cent.); 300.15 part. rest. (A.D. 526); 347 ii note (6th cent.); *SB* 9085 inv. 16048.20 (A.D. 565); perh. also λεψ[άνη]ς *PLond.* 1695.24 (A.D. 531 ?)
λεμψάνης *PHamb.* 68.41 (A.D. 550+); *PMichael.* 46.22 (A.D. 559); 54.12 (6th cent.)
λαψάνης *PCornell* 22.44 (early 1st cent.); *PMichael.* 43.11 (A.D. 526); *PLond.* 1694.22 (1st half 6th cent.); sim. *PLond.* 1698.4 (mid 6th cent.)
λαμψάνεια *PAntin.* 92.26 (4th/5th cent.)

ii. In accented syllables:

ἔκουσα (for ἄγουσα) *BGU* 1106 = *MChr.* 108.51 (13 B.C.)
θυγατρέσι (for θυγατράσι) *BGU* 1013.8 (A.D. 41-69)[2]
ἐνέτου (for ἐνάτου) *PAmh.* 87 = *PSarap.* 27.4 (A.D. 125)
κατέ (for κατά) *PSI* 450.36 (2nd/3rd cent.)
διέθεσιν (for διάθεσιν) *POxy.* 52.13 (A.D. 325)
διέ (for διά) *SB* 9511 = *PMed.* 87.5 (6th cent.)
μέ (for μά) *PPrinc.* 70.8 (2nd/3rd cent.)
μέθε (for μάθε) *PLBat.* xvii, 16 = *SB* 10286 b.5 (2nd/3rd cent.)
μέθωμεν (for μάθωμεν) *PLond.* 1916.26 (ca. A.D. 330-40)
βρέκια (for βράκια) *PRyl.* 627.33 (A.D. 317-23)
μέχωμε (for μάχομαι) *PGen.* 54 = *PAbinn.* 35.7 (ca. A.D. 346)
ἐργέσασθαι (for ἐργάσασθαι) *PBouriant* 20 = *PAbinn.* 63.30 (A.D. 350)
ἔπαντες (for ἄπαντες) *PPar.* 21b.4, with ἐπένεγκες for ἐπάναγκες 24, ἄπαντα 19 (A.D. 592)
πρωτέξαντος (for προτάξαντος) *POxy.* 138.47 (A.D. 610/11)

Note. The Attic spellings -ια-, -υα-, are preferred to the Ionic-Hellenistic spellings -ιε-, -υε-, in ψίαθος, φιάλη, and κύαθος; the spellings fluctuate in forms of ὕαλος.[3]

1. ψίαθος, etc., is the normal spelling; ψίεθος is rare:

ψιάθους *PMed.* 6.9 (A.D. 26); *OTaitPetr.* 233.6 abbrev. (A.D. 29); 257.6 (ca. A.D. 37-41); 262.8 (A.D. 41)
ψιάθου *PMich.* 238.77 abbrev. (A.D. 46); *PLond.* 928 (iii, 190-1).10 (2nd cent.)
ψιάθων *POxy.* 520.16 (A.D. 143); *PBeattyPanop.* 1.122,162, with ψιάθοις 121, ψειαθείοις 161 (A.D. 298)
ψιάθιον *BGU* 812 i.5,8 (2nd/3rd cent.); ψιάτιων *PLBat.* xi, 1 i.19; sim. ii.18 (A.D. 338)
ψιάθια *OTait* 2366.2 (Rom.); *BGU* 812 i.8 (2nd/3rd cent.); *PRyl.*

[1] λα(μ)ψάνη Dsc. Gal. and Ptol. papp. (*LSJ*, s.v.)
[2] See also Morphology I C 3.
[3] Cf. Schwyzer i, 243(-4), Zus. 1; *BDF*, § 29.2. Only the Att. spellings are found in the Ptol. papp. (Mayser i², 1, 36).

627.127, etc. abbrev. (A.D. 317-23); *POxy.* 148 = *StudPal.* iii, 282.2,3 abbrev. (A.D. 556); sim. *PAlexGiss.* 44.5 (ca. A.D. 120)
ψιαθίων *PJand.* 150 i.1 part. rest. (3rd cent.); *PLond.* 1713.33 (A.D. 569); *PLond.* 1714.33 (A.D. 570); *PLond.* 1433.281 (A.D. 706/7); etc.
ψιαθοπλόκωι *PSI* 1132.8 (A.D. 61)
ψιέθους *OTaitPetr.* 228.5 (A.D. 26); *PGiss.* 70.6 (ca. A.D. 117)
ψιέθιν *POxy.* 1923.7 (5th/early 6th cent.)

2. φιάλη is the only spelling attested:
φιάλη *POxy.* 521.17 (2nd cent.); *BGU* 338 = *MChr.* 91 ii.22 (2nd half 2nd cent.); etc.
φιάλης, φιάλην *POxy.* 937.12,18 (3rd cent.); sim. *PSI* 306.8 (2nd/3rd cent.); cf. *PLBat.* i, 21.39 & 42,43 mag. (3rd cent.)
φιαλῶν *PFay.* 127.9-10 (2nd/3rd cent.)
φιάλα̣ις *PMichael.* 23 B.2 (A.D. 296)
φ̣ιάλ̣ιον *SB* 8384.10 with φιάλην 12 (A.D. 260-8)

3. κύαθος is likewise the only spelling attested:
κύαθον *POxy.* 1583.10 (2nd cent.); *OStrassb.* 652.6 (2nd/3rd cent.)
κύαθος *PErl.* 21.42 part. rest. (ca. A.D. 195); *PGrenf.* ii, 111 = *WChr.* 135.30 abbrev. (5th/6th cent.)
κύαθοι *PCornell* 33.12 (3rd cent.)
κυάθ̣(ων) *POslo* 46.5 (3rd cent.)
κ̣υ̣άθια *PLond.* 1657.11 (4th/5th cent.); sim. *POxy.* 1289.10,13 (5th cent.)

4. ὕαλος and ὕελος occur in approximately equal frequency:
ἱάλου (for ὑάλου) *PRossGeorg.* ii, 41.42 (2nd cent.); *PBon.* 38 A i.15 (3rd/4th cent.)
ὕαλον *PFay.* 134.4 (early 4th cent.)
ὑαλοπώλης *OTait* 1752.5 (2nd cent.)
ὑα̣λειδῆ[ι *SB* 9307.1 (2nd/3rd cent.)
ὑαλοψῷ *PBaden* 97.35 (Arab.)
ὑαλῆ (adj.) *PRossGeorg.* ii, 29.1 (2nd cent.)
ὑαλαῖ *POxy.* 1294.6 (late 2nd/early 3rd cent.)
ὑα[λ]οῦν *SB* 9238.19 (A.D. 198-212)
ὑαλῶν *POxy.* 2058.34 (6th cent.)
ὑέλων *PYale* 84.3 (A.D. 213)
ὕελα *PLBat.* xvi, 30 i.8 (3rd cent.)
ὑέλλου (for ὑέλου) *PRossGeorg.* v, 61 A R.17 (4th cent.)
ὑελλουργῶν *PRyl.* 374.5 (late 1st cent. B.C./early 1st cent. A.D.)
ὑελουργῶν *PGot.* 7.4 (mid 3rd cent.: *BL* v, 36)
ὑελᾶ (adj.) *PLond.* 191 (ii, 264-5).16 (A.D. 103-17)
ὑε̣λοῦν *PLBat.* vi, 49a ii.3 (prob. A.D. 205)
ὑελα<ῖ> *POxy.* 741.15 (2nd cent.)
ϋέ[λεα *StudPal.* v, 9.6 (3rd cent.)
ὑελῶν *PFay.* 104.1,2 (late 3rd cent.); prob. also ὑαιλων *PLBat.* vi, 49 b ii.8 (prob. A.D. 205)

2) ε > α.

a) In unaccented syllables:

ἐπόησα (for ἐποίησε) *PMerton* 104.12 (early Rom.)
θαραπείαν (for θεραπείαν) *PSI* 446.7 (A.D. 133/7)
μετάδοτα (for -δοτε) *StudPal.* xxii, 184.32-33: *BL* ii, 2, 168 (A.D. 140?)
ἐγανάμην (for ἐγενάμην) *PMich.* 209.7, corr. elsewh. (late 2nd/early 3rd cent.)
ἀκουσίως (for ἑκουσίως) *SB* 7988 = *PSI* 1329.8 (A.D. 212)
ματά (for μετά) *BGU* 1030.6 (3rd cent.)
σύνθασις (for -θεσις) *POxy.* 2407.22 (late 3rd cent.)
πέντα (for πέντε) *POxy.* 1998.9, corr. 7 (6th cent.)
μαγρικ(όν) (for μεγαρικόν) *PGot.* 17 R.16 (6th/7th cent.)
λέλακτ[α]ι̣ (for λέλεκται) *PLond.* 1384.37 (A.D. 710?)

Note 1. ἐργαλεῖον appears frequently as ἀργ-:

ἀργαλε͂α (for ἐργαλεῖα) *PRyl.* 138.20 (A.D. 34); sim. *PLond.* 280 = *WChr.* 312.10,14 (A.D. 55); *PHeid.* 237.12 (2nd cent.); *PAmh.* 93 = *WChr.* 314.20 (A.D. 181); *POxy.* 2875.32 (early 3rd cent.); *SB* 6946 = *PLBat.* vi, 54.19-20 (A.D. 219/23); *PFlor.* 158.4 (3rd cent.); *SB* 9150.37,47 (5th cent.)
ἀργαλεις α (for ἐργαλεῖα?) *OTait* 2154.2 (4th cent.)
ἀργαλιδίων *SB* 9406.271 (A.D. 246); 9409 (7).100 (A.D. 252/3)
ἐργαλῖα *PFlor.* 185.15 (A.D. 254); *POxy.* 1220.17 (3rd cent.)
ἐργαλείων *WChr.* 13.8 (A.D. 34/35); sim. *PGiss.* 82.15 (A.D. 117); *PBeattyPanop.* 1.215 (A.D. 298); *PCairMasp.* 295 ii.5 (6th cent.)
ἐργαλαίων (for -είων) *PLond.* 1334.10 (A.D. 709)
ἐργαλίδια *PCairMasp.* 273 descr. (6th cent.)
ἐργαλιδίων *PCairMasp.* 1.24 (A.D. 514)

Note 2. λεκάνη is sometimes spelled λακάνη;[1] the following examples occur:

λακάνη *POxy.* 1269.23 (early 2nd cent.)
λαγάνη *PCairIsidor.* 137.1 (late 3rd/early 4th cent.)
λεκάνη *StudPal.* xx, 67 R.2 (2nd/3rd cent.); *PTebt.* 406.13 (ca. A.D. 266); perh. also *PLond.* 1657.5 (4th/5th cent.)

Note 3. Latin *e* is sometimes transcribed by α, regularly by assimilation in καλάνδαι, occasionally before α in a following syllable in other loanwords and names.[2]

[1] Att. λεκάνη, Hell. λακάνη (*LSJ*, s.v. λεκάνη). λεκάνη is used excl. in the Ptol. papp. (Mayser i², 1, 44-45).

[2] Meinersmann, 108; cf. Eckinger, 18-19 (*calendae* transcribed καλάνδαι wo. exc. fr. the 2nd cent. B.C. on).

καλανδῶν *calendae* *BGU* 113 = *WChr.* 458.8 (A.D. 140); *PLond.* 1178 = *WChr.* 156.48 (A.D. 194); *POxy.* 2348.44 (A.D. 224); etc.; cf. *PLond.* 130 (i, 132-9).44, horoscope (1st/2nd cent.)

οὐατρανός *veteranus* *PHamb.* 83.8 (prob. A.D. 156/7); *PMich.* 223.1542 (A.D. 171-2); 224.1467,4055,6001,6252 (A.D. 172-3); 225.2091 (A.D. 173-4); *SB* 7630 = *PSI* 1325.22 (A.D. 176/80); *PFlor.* 87.6 part. rest., corr. 4 (4th cent.)

οὐατρανοῦ *SB* 7379.25 (A.D. 177)

οὐατρ[ανῷ *PSAAthen.* 27.10 (A.D. 150)

ο]ὐατραν[ῶ]ν *PGrenf.* ii, 51.5 (A.D. 143)

οὐατρανῆς (adj.) *PHamb.* 39 F i.1; sim. G ii.10, corr. 1 (A.D. 179)

cf. Ὀατρανός *PDura* 31.56 (A.D. 204)

but οὐετρανός *BGU* 71.1 (A.D. 189); *PLond.* 1157 (iii, 61-68).31, etc. (A.D. 266/7: *BL* i, 277); *PLond.* 249 = *PAbinn.* 75.34, sim. 35 (ca. A.D. 350); etc.

Οὐασπασιανοῦ *Vespasianus* *PAmh.* 130.20 (A.D. 70); *WO* 1042.3 part. rest. (A.D. 70/71)

but Οὐεσπασιανοῦ elsewhere; for examples, see above, p. 247

b) In accented syllables:

ὑπάρ (for ὑπέρ) *SB* 9109.7 (A.D. 31)

ἑτάρις (for ἑτέροις) *PGrenf.* ii, 41 = *MChr.* 183.26 (A.D. 46)

παράξῃ (for παρέξῃ) *PFouad* 37.4, sim. 7: *BL* iii, 60-61 (A.D. 48)

παράξ (for παρέξ) *SB* 5218.4 (A.D. 156)

δά (for δέ) *SB* 9252 = *PLBat.* vi, 19.6 (A.D. 118)

τάσσαρα[ς] (for τέσσαρας) *SB* 8984.3 (A.D. 140)

δαψιλάς (for δαψιλές) *PPrinc.* 165.8 (2nd cent.)

ἄγραψα (for ἔγραψα) *BGU* 80 = *BGU* 446.25 (A.D. 169-77: *BL* iii, 13)

ἄδωκα (for ἔδωκα) *POxy.* 2771.4 (A.D. 323)

παρει]ληφάναι (for -ειληφέναι) *PCornell* 45 = *SB* 9833.12 (A.D. 299)

ἀποψά (for ἀποψέ) *PLond.* 1081 (iii, 282-3).2 (7th cent.)

Note. The Doric spellings πιάζω and ἀμφιάζω are used exclusively in Roman and Byzantine papyri.[1] Only the following forms occur:

πεπιάκαμεν *SB* 9017 (14).9 (1st/2nd cent.); *PMich.* 473.27 part. rest. (early 2nd cent.)

πιασθῇ *SB* 9345.3 (1st/2nd cent.)

πιαζώμενος *PHamb.* 6 = *WChr.* 320.16-17 (A.D. 129)

ἐπιάζοντο *PMich.* 457.14 (late 3rd cent.)

πιάσαι, πιάσαντες, πιάσας *PLond.* 1914.11,16,35 (A.D. 335?)

πιασάντων *SB* 8003.5 (4th cent.)

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[1] Only πιέζω is attested in the Ptol. papp. (Mayser i², 1, 8). πιάζω and ἀμφιάζω are found in the NT (*BDF*, §29.2).

πιάσαι *PLond.* 483 (ii, 323-9).76 (A.D. 616)
ἀμφιάσαντες *SB* 6949 = *SB* 8546.24 (before A.D. 356)
ἀμφιάζεσ̣θ̣αι *PJand.* 62.14 (6th cent.)
cf. ἀ̣μ̣φ̣ιασθ̣ή̣σ[ον]ται *PMur.* 115.9 (A.D. 124); sim. 116a.9 (1st half 2nd cent.)

An interchange of α and ε is found elsewhere in Greek, especially before liquids.[1] But nowhere outside Egypt is it found so frequently and unconditionally,[2] and bilingual interference has long been postulated to explain it, especially when it occurs in accented syllables.[3] The interchange in unaccented syllables probably reflects the reduction of unstressed vowels to /ə/; in accented syllables, it indicates underdifferentiation of phonemes through bilingual interference. In Sahidic and Bohairic orthography, ⲁ and ⲉ (¯) are positional variants in stressed syllables, ⲉ occurring (except in Greek loanwords or as an allophone or orthographic variant of ⲏ) only before [ˀ][4], ϩ, and ϣ, and in final position;[5] and (in Sahidic) the supralinear stroke appears only over (i.e., before in pronunciation) the sonants ⲃ ⲗ ⲙ ⲛ ⲣ.[6] In these dialects, ⲁ does not normally occur in these positions except where it in turn is a positional variant of ⲟ before [ˀ], ϩ, ϣ.[7] Thus the sounds represented in stressed syllables in Sahidic and Bohairic by ⲁ ⲉ (¯), probably [a ɛ ə], are allophones of the phoneme /a/ (except for ⲉ representing the allophone of ⲏ). In these dialect areas,[8] a Greek speaker whose writings show other evidence of bilingual interference might be expected to confuse Greek accented /a/ and /ɛ/ because in these dialects there was no phonemic distinction between the two sounds. In the other dialects, ⲁ and ⲉ represent distinct phonemes in stressed syllables, while ⲁ and ⲟ are positional variants with ⲟ occurring only in final position and before [ˀ].[9] The ⲉ ~ ⲁ opposition of these dialects corresponds etymologically to the ⲁ ~ ⲟ opposition of Sahidic and Bohairic. In no dialect of Coptic were there more than two phonemes in accented syllables for the sounds in question, whereas in Greek there

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1 Cf. ε > α before ρ in NWGr., e.g., Locr. φάρειν, πατάρα, Delph. φάρεν, ματάρα; ε > α before λ in Delph. Δαλφοῖς, etc.; El. ε > α also after ρ, before final -ν, and occ. in other positions as well (Buck, *GD*, § 12; Schwyzer i, 181). Final α changes to ε in Thess. διέ, as occ. final αι to ει (Buck, *GD*, § 7). ε preceding or following a liquid is often lowered (Schwyzer i, 274-5; Lejeune, § 230), and assimilation or dissimilation in the presence of another α and ε are found (Schwyzer i, 255-8). In the Att. inscrr., ἐρετή for ἀρετή is found, prob. through dissimilation (*MS*, 15).

2 The mag. tablets show a few parallels, e.g., ἄτι for ἔτι Audollent #241.23, Carthage (n.d.). Elsewh. it is common only in the Ptol. papp. (Mayser i^{2}, 1, 33-37, 44-45).

3 Mayser i, 55; Dieterich, 10-11; Thumb, *Hell.*, 138; Kapsomenakis, 34-35.

4 This represents a laryngeal (aleph/ayin); the vowel in this position is always doubled in S, but not in B, where the laryngeals were lost earlier (Steindorff, 8, 34-35; Worrell, 79; Vergote, *Gram.*, Ia, § 14).

5 Steindorff, 8-9; Worrell, 59, 73-74, 84; Vergote, *Gram.*, Ia, § 40.

6 Steindorff, 29; Worrell, 11-14; Vergote, *Gram.*, Ia, § 54.

7 Steindorff, 32; Worrell, 78; Vergote, *Gram.*, Ia, § 39, 60-61; and see below, pp. 288-9.

8 See map, pp. 52-53.

9 Steindorff, 8-9; Worrell, 78; Vergote, *Gram.*, Ia, § 39, 62-63.

were three.[1] Evidence below for the confusion of α and ο suggests that in the up-river dialect areas, speakers identified Greek /o/ with their /a/, leaving both Greek /ε/ and /a/ to be identified with their /ε/. This hypothesis of bilingual interference is supported by the interchange of ⲁ and ⲉ in Greek loanwords in Coptic[2] and in native Egyptian words in the up-river areas.[3]

b. For the interchange of α and αι, see above, pp. 194-7.

c. There is only a sporadic interchange of α and η:

συμπεφονακαίνε (for συμπεφωνηκέναι) *PLBat.* vi, 31.9-10 (A.D. 144)
cf. καστρασανιανῷ (for καστρησιανῷ *castrensis*) *PCairMasp.* 126.9, corr. 62,70 with [κ]ασσ̣τ[ρ]ισιανόν 77, diff. hand (A.D. 541); sim. 54 ii.7; 146.5 (6th cent.)

d. There is a rare interchange of α and ι.

1) α > ι:

τὴν ὑπάρχουσιν (for -σαν) μοι *PMich.* 260-1.29 (A.D. 35)
πιρά (for παρά) *PThead.* 22.2 (A.D. 342)
ἀνικαλύψαι (for ἀνα-) *POxy.* 1297.9 (4th cent.)
ἰριθμῖσθαι (for ἀριθμῆσθαι) *SB* 9603 c.9 (A.D. 372)
κατικελεύω (for κατα-) *POxy.* 130.18 (6th cent.)

2) ι > α:

εἰκοσαπενταρούρων (for εἰκοσι-) *PSI* 904.2-3, sim. 11, so duplic. *PMich.* 341.1-2, sim. 10 (A.D. 47)
εἰκοσαδραχμῷ *PLond.* 1157 V a = *WChr.* 375.8,15 part. rest. (A.D. 246)
εἰκοσαετοῦς *PLond.* 1343.12 (A.D. 709)
ἀντασχέσθαι (for ἀντι-) *PAmh.* 133 = *PSarap.* 92.12 (early 2nd cent.)

3. Interchange of α with ο (and ω).

a. α × ο.

1) α > ο.

This interchange occurs almost exclusively in unaccented syllables, mainly in final syllables before -ς.

a) In final syllables before -ς:

τέσσαρος (for τέσσαρας) *PPrinc.* 142.6 (ca. A.D. 23); *SB* 5110 = *PRyl.* 160d, ii.11,29 (A.D. 42); *POxy.* 243 = *MChr.* 182.33 (A.D. 79); *PStrassb.* 341.36 (A.D. 85); *PLBat.* vi, 9.11 (A.D. 107); *PAmh.* 111.26

[1] See the vowel quadrilaterals below, pp. 332-3.

[2] Cf. Böhlig, 104-5, who, however, explains the change of ⲉ > ⲁ by assimilation and of ⲁ > ⲉ by dissimilation; Worrell, 101, 104, 113.

[3] Cf. Worrell, 101-2, 104, 113; Kahle, VIII, §7, 21.

(A.D. 132); *PTebt.* 364.12 (A.D. 170-5); *BGU* 819.4,6 (A.D. 202/3); *PLond.* 979 (iii, 234-5).11 (A.D. 346); etc.

πάντος (for πάντας) *PMich.* 577.10-11 (A.D. 41-69); *SB* 8030 = *PMich.* 245.31 (A.D. 47); *PMerton* 63.7 (A.D. 57)

ἅπαντος *BGU* 834.17,19 (A.D. 125)

ἠσθένηκος, ἔσχηκος, ὑιένωντος (for ἠσθένηκας, ἔσχηκας, ὑγιαίνοντας) *SB* 7660.6,8,12 (ca. A.D. 100)

ἐλαιῶνος (for -ας) *PFay.* 120.10 (ca. A.D. 100)

ἔχοντος (for -ας) *PFay.* 118.18,20 (A.D. 110)

αἶγος (for -ας) *PCornell* 15.13, with τέσσαρος 17 (A.D. 128/9)

ὄρνιθος (for -ας) *PLond.* 335 = *WChr.* 323.18 (A.D. 166/7 or 198/9)

εἴδαμεν ὑμᾶς θυσιάζοντος (for -ας) *PHamb.* 61 b.7-8; *SB* 6824 = *PMich.* 157.19; *SB* 6825 = *PMich.* 158.16; *SB* 4445.16; 4446.7 (all A.D. 250); etc.

τ[ο]ὺς φιλοῦντος *BGU* 814.38 (3rd cent.)

τοὺς ... ἀπαλλαγέντος *BGU* 1026 xxii.16 (4th/5th cent.)

b) In other positions:

συναρποζόμενος (for συναρπαζ-) *POxy.* 2234.8-9 (A.D. 31)

μετοξύ (for μεταξύ) *PLond.* 177 = *MChr.* 57.11 (A.D. 40/41); *PAmh.* 64.4 (A.D. 107); *PGiss.* 30.2 (A.D. 140-61); *POxy.* 237 v.11, corr. iv.6 (A.D. 186); 1630.12 (A.D. 222?); 1475.20 (A.D. 267); *PMerton* 91.4 (A.D. 316); *PGen.* 48 = *PAbinn.* 60.11 (A.D. 346); *PAntin.* 93.42 (4th cent.); *PSI* 783.4 (A.D. 357); *POxy.* 1126.11 (5th cent.); etc.

τάλοντα (for τάλαντα) *PLond.* 1164 (iii, 154-67) h.29 (A.D. 212)

πρόστογμα (for -ταγμα) *PLips.* 64 = *WChr.* 281.34, corr. 43 (A.D. 368/9)

μετηλλοχότας (for μετηλλαχότος) *SB* 7284.15,18 abbrev. (n.d.)

μονόζον(ος) (for μονάζωνος) *SB* 5600 A.1 (A.D. 770-80: *BL* v, 97)

cf. μονοστήριων (for μοναστήριον) *SB* 7324.1-2, inscr. (Byz.)

2) ο > α.

This interchange occurs in accented as well as unaccented syllables.

a) In unaccented syllables:

ἐπάνανκαν, ἄξιαν (for ἐπάναγκον, ἄξιον) *PMich.* 346.1-2,8; sim. *PMich.* 346a.1-2, corr. 10 (A.D. 13)

εἴκασ|πένται (for εἴκοσι πέντε) *SB* 5110 = *PRyl.* 160d, ii.5-6 (A.D. 42)

ἑβταμήκοντα (for ἑβδο-) *WO* 392.2 (A.D. 44)

ἀπόσης (for ὁπόσης) *PMilVogl.* 98.22 (A.D. 138/9?)

ἀπαγραφῆς (for ἀπο-) *BGU* 601.13, corr. 14 (2nd cent.)

ἀπακατασήσω (for ἀποκαταστήσειν) *PLBat.* xi, 15.10-11 (4th cent.: *BL* v, 62)

παλλάκεις (for πολλάκις) *POxy.* 531 = *WChr.* 482.4 (2nd cent.)

ναμάρχη (for νομάρχῃ) *PWürzb.* 8.1, corr. 8 (A.D. 158/9)

ἀνόματα (for ὀνόματα) *PCairIsidor.* 29.3 (1st half 4th cent.); sim. *POxy.*

1478 = *PGM* 27.5 (3rd/4th cent.); sim. *POxy.* 1566 = *PGM* 81.10 (4th cent.)

πρασαγορεύω (for προσ-) *PGiss.* 54 = *WChr.* 420.18, prob. 3-4 (4th/5th cent.)

cf. ἁ (for ὁ) *SB* 7564.5, inscr. (A.D. 601)

b) In accented syllables:

Ἱπποδράμου (for Ἱπποδρόμου) *PMich.* 194.14 (A.D. 61)
τοῖς ἡρκάσι (for ἡρκόσι) *PFay.* 103.3 (3rd cent.)
πάλιν, δημάσιον (for πόλιν, δημόσιον) *PFay.* 20.22 (late 3rd/early 4th cent.)
ἅπως (for ὅπως) *PSI* 841.5 (4th cent.)
ἱματιοφάρια (for -φόρια) *SB* 7033.42 (A.D. 481)
συκάμ[ω]ρ(ον) (for συκόμορον) *POxy.* 1925.13,14,19,23,43 (7th cent.)
cf. διὰ παντάς (for παντός) *POxy.* 1927.15, liturgical frag. (5th/6th cent.)

b. ω × α.

1) α > ω:

(τὴν) ἄρουρων (for ἄρουραν) *PTebt.* 390.22-23 (A.D. 167?)
ἐνεδείξωσθε, ἐνέδειξων (for -ασθε, -αν) *MChr.* 361.9,16 (A.D. 360)
αἰχάτην πεῖνων (for ἐσχάτην πεῖναν) *POxy.* 902 = *MChr.* 72.11-12 (ca. A.D. 465)

2) ω > α:

πράτης (for πρώτης) *PMich.* 588.3 (mid 3rd cent.)
Σαραπάμαν, Νιλάμαν (for -ων) *OMich.* 804.5,7 (late 3rd/early 4th cent.)

The change of α to ο is found elsewhere in Greek, especially in connection with liquids.[1] But nowhere outside Egypt is there a frequent interchange of α and ο.[2] This suggests that the symbols were confused by underdifferentiation of phonemes through bilingual interference. In all the Coptic dialects, ο was only a positional variant (allophone) of either ⲁ or ⲱ in stressed syllables, and in unstressed syllables there was no ο at all.[3] The hypothesis of bilingual inter-

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[1] Cf. α > ο in Lesb. στρότος, χόλαισι, etc., Boet. στροτιώτας, etc., W.Ion. τέτορτος (Buck, *GD*, § 5). α is also replaced by ο before a nasal and in some other positions wo. apparent pattern, e.g., Lesb. Thess. Arc. Cypr. ὄν for ἀνά, Arc. δέκο, Lesb. ἔνοτος, Delph. ἐντοφήια, Heracl. τοφιών, etc. (Buck, *GD*, § 6). See further Schwyzer i, 88, 275.

[2] In the Att. inscrr., the interchange of α and ο is rare and occurs mainly in word formation (*MS*, 16). In Asia Minor, α occurs for ο as a Rhod. peculiarity (Schweizer, 68). Some exx. are found in the mag. tablets, e.g., ἀνησιφόρος for ὀνησιφόρος Audollent #84.17, Thebes (2nd cent. B.C.), διοστ<ρ>αίψ[αται] for διαστρέψατε 16 x.11, Syria (3rd cent.). Cf. also προγεγρομένα *PDura* 26.32 (A.D. 227); ἐπερώτησον for -σαν 31.43 (A.D. 204). In the Ptol. papp., the change is mainly from α > ο, esp. in the presence of a nasal or liquid (Mayser i², 1, 37-38, 70-71).

[3] See the Copt. vowel quadrilaterals below, pp. 332-3, and cf. Steindorff, 8-9, 32; Worrell, 78; Vergote, *Gram.* Ia, § 39, 60-64.

ference is supported by the frequent interchange of stressed ⲁ and o in the up-river dialect areas, especially by the change of stressed o to ⲁ, the same direction as the change observed in the Greek papyri.[1] The ⲁ of the up-river dialects corresponds etymologically to the o of Sahidic and Bohairic.[2] ⲁ and ⲱ likewise interchange only rarely in Coptic.[3]

4. Interchange of ο (ω) with ε and other front vowels.

a. ο × ε.

1) ο > ε.

a) In unaccented syllables.

i. Before final -ς:

σφραγεῖδες (for σφραγῖδος) *POslo* 26.18-19 (5/4 B.C.)
τέλες (for τέλος) *SB* 4251.3 (A.D. 32/33)
τίνες (for τίνος) *BGU* 665 iii.13-14 (1st cent.)
ῥήτορες (for ῥήτορος) *PVindobWorp* 1.14 (A.D. 91-96)
τοῦ ἐνεστῶτες (for -τος) ἔτους *PTebt.* 512 descr. = *SB* 10538.29 (A.D. 130)
τοῦ παρελθόντες χρόνου *PFay.* 20.6 (late 3rd/early 4th cent.)
αὐτοῦ ... μὴ εἰδότες (for εἰδότος) *PSI* 1265.15 (A.D. 426/41)
ἐλάσσονες (for ἐλάσσονος) *POxy.* 729.42 (A.D. 137)
ὁ προγεγραμμένες (for -μένος) *POxy.* 732.7 (A.D. 150)
ἕκαστες (for ἕκαστος) *PHamb.* 39 G ii.15 (A.D. 179)
ὀφρύες (for ὀφρύος) *SB* 7535 = *PLBat.* i, 6.9-10 (A.D. 198/9)
αὐτοκράτορες (for αὐτοκράτορος) *PBeattyPanop.* 1.260 (A.D. 298)
τῆς φοράδες (for φοράδος) *PMich.* 521.8 (5th cent.)

ii. In other positions:

ἑβτεμήκοντα (for ἑβδο-) *PMich.* 329-30.17 (A.D. 40); sim. *PLond.* 1164 (iii, 154-67), f.16 (A.D. 212)
ἑβδεμηκοστόν *PSI* 199.7 (A.D. 203)
τρίτεν (for τρίτον) *SB* 7031 = *PMich.* 186.34 (A.D. 72)
πρεστάταις (for προ-) *BGU* 2033.3 (A.D. 94)
ἤκουεν (for ἤκουον) *SB* 7407.41 = *PLBat.* vi, 24.84 (A.D. 124)
Διενυσίαν (for Διονυσίαν) *SB* 7572.12 (prob. 1st half 2nd cent.)
Σεκνεπαίου (for Σοκνοπαίου) *PGen.* 29.4 (A.D. 137); sim. *BGU* 805.1 (A.D. 137/8); *CPR* 15.8 (A.D. 149); *PLond.* 358 = *MChr.* 52.2 (ca. (A.D. 150); *PAlex.* 6 = *PAlexGiss.* 3.4-5 (A.D. 201-2); etc.
δύε (for δύο) *PLBat.* iii, 13.4, with Σεκνεπαίου also 4 (A.D. 156)
ἀρτεκο(πίου) (for ἀρτο-) *OMich.* 257.2: *BL* iii, 263 (A.D. 309)

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[1] This is called "the commonest of vocalic peculiarities" in the Theban area by Worrell, 101. For exx., see Worrell, 101-3; Kahle, VIII, § 10, 43.

[2] Steindorff, 8-10; Worrell, 83-84; Vergote, *Gram.* Ia, § 39.

[3] Cf. Kahle, VIII, § 10A, 60C.

ναυλεπλοί(ου) (for ναυλο-) *PMich.* 399.5; 400.5; 401.5; 402.6; etc. (1st half 4th cent.)
μεγαλεπόλεως (for μεγαλο-) *PCairMasp.* 286.14, with ἑκατεστῆς for ἑκατοσταῖς 7,18 (A.D. 527/8)

b) In accented syllables.

i. Before final -ς or -ν:

Σεβαστέν, δρυμέν (for Σεβαστόν, δρυμόν) *PFouad* 19.9,11 (A.D. 53)
[π]ατρικέν (for πατρικόν) *SB* 8950 = *PSI* 1320.18 (A.D. 82-96)
μηδενές (for μηδενός) *PSAAthen.* 29.27 (A.D. 121)
παντές, αὐτέν (for παντός, αὐτόν) *SB* 7572.2,11 (prob. 1st half 2nd cent.) αὐ[τ]έν *PMich.* 210.6 (2nd/early 3rd cent.); 518.15 (1st half 4th cent.)
ἑκατέν (for ἑκατόν) *SB* 7515.774 (A.D. 155); *PTebt.* 390.20,27 (A.D. 167 ?)
ἐνδές (for ἐντός) *PMich.* 244 R.1404 (A.D. 172-3)
σατέν, μικρές (for σαυτόν, μικρός) *SB* 8027.9,10, with μετάμελες for -μελος 5-6 (2nd/3rd cent.)
χυλέν (for χυλόν) *PRyl.* 242.6, with ἀδύναατες *sic* for ἀδύνατος 4-5, ἀναδιδοῦντες for -τος 7-8, φόρφυρεν for πόρφυρον 9 (3rd cent.)
τρυφερέν (for τρυφερόν) *POxy.* 2599.34 (3rd/4th cent.)
λινέν (for ληνόν) *PGron.* 13.9 (5th/6th cent.)

ii. In other positions:

προσδιδέναι (for -διδόναι) *BGU* 1115.42 (13 B.C.)
τέκου (for τόκου) *PLond.* 277 (ii, 217-18).9: *BL* i, 264 (A.D. 23)
ἡμιένους (for ἡμιόνους) *PMich.* 229.16 (A.D. 48)
ἔτι (for ὅτι) *POxy.* 1155.3 (A.D. 104)
ὀρέβου (for ὀρόβου) *SB* 7013.49 (3rd cent.)
εὐθυμέτεροι (for εὐθυμότεροι) *POxy.* 1682.10 (4th cent.)

2) ε > ο.

a) In unaccented syllables, almost exclusively before σ/ς or ν:

προσβύτεροι (for πρεσ-) *BGU* 1201.14 (A.D. 2); sim. *PSI* 1051.6 part. rest. (A.D. 26); *PMich.* 328.1-2,11 (A.D. 29); 311.5,27 (A.D. 34); 313.8 (A.D. 37); *POxy.* 1145.9 (1st cent.); *BGU* 44.4-5 (A.D. 102); *SB* 8053.4 (A.D. 133); *PStrassb.* 62.7 (A.D. 229/30); *PPrinc.* 100.11-12 (4th cent.); *PRossGeorg.* iii, 10.10 (4th/5th cent.); etc.
γείτονος (for γείτονες) *PMich.* 249.2; 250.4 (A.D. 18); sim. *SB* 5108 = *PRyl.* 160.3 (A.D. 28/29); etc.; *SB* 7260 = *PMich.* 121 R II ii.2,4 (A.D. 42); *CPR* 4 = *MChr.* 159.11, corr. 33 (A.D. 51/53); *PMich.* 583.9 (A.D. 78); *BGU* 350.6,20 (A.D. 98-117); *BGU* 233.7 (A.D. 161-9); *PTebt.* 310.6 (A.D. 186); *PLond.* 1044 (iii, 254-5).5 (6th cent.); etc.
τέσσαρος (for τέσσαρες) *PMich.* 293.1, with γίτονος for γείτονες 4 (A.D. 14-37); *PMich.* 304.2 (A.D. 42 ?); *POxy.* 243 = *MChr.* 182.30, and for -ας 33 (A.D. 79); *PTebt.* 391.2 (A.D. 99); *BGU* 1067.6 part. rest. (A.D. 101/2)

οἱ δεκατέσσαρος *PSI* 901.11, sim. 19 (A.D. 46)
τεσσαροσκαιδεκάτου *PTebt.* 349.3-4 (A.D. 28); 373.1 (A.D. 110/11); *PLBat.* vi, 26.1 (A.D. 129)
οἱ γαμοῦντος (for γαμοῦντες) *PMich.* 121 R IV i.3 (A.D. 42)
ἐλθόντος (for -τες) *SB* 8030 = *PMich.* 245.2 (A.D. 47)
ὁμολογοῦντος (for -τες) *SB* 7032 = *PMich.* 187.18 (A.D. 75)
ἔχοντος (for -τες) *POxy.* 2852.29-30 (A.D. 104/5)
ἐῶντος (for -τες) *POxy.* 729.18 (A.D. 137)
λαμβάνοντος (for -τες) *PSI* 1037.26 (A.D. 301)
διάγωντος (for -τες) *PAntin.* 42.8 (A.D. 542)
στατῆρος (for στατῆρες) *PMich.* 128 ii.38 (A.D. 46-47)
ἐνοστῶτος (for ἐνεστῶτος) *PMich.* 229.5 (A.D. 48); sim. *PTebt.* 300.9 (A.D. 151); *BGU* 585 i.6 (A.D. 212+)
[π]ε[π]ράκαμον (for πεπράκαμεν) *PGen.* 23 = *MChr.* 264.2-3 (A.D. 70)
εὕρομον, ὑγέ[ν]ωμον (for εὕρομεν, ὑγιαίνομεν) *SB* 7660.12,13 (ca. A.D. 100)
εὕρομον also *POxy.* 2997.11 (A.D. 214)
μέλλομον (for μέλλομεν) *PFay.* 115.6 (A.D. 101)
πέμψομον (for πέμψομεν) *PFay.* 116.18 (A.D. 104)
ἔχωμον (for ἔχομεν) *PFay.* 117.8 (A.D. 108); sim. 118.14 (A.D. 110)
ἔγραφος (for ἔγραφες) *PFay.* 117.22 (A.D. 108)
ἐξουδονήσῃ (for ἐξουδενήσῃ) *PMich.* 477.23 (early 2nd cent.)
σφραγῖδος (for σφραγῖδες) *PMich.* 557.13 (A.D. 116)
ὀβδομήκοντα (for ἑβδο-) *PSI* 1236.26 (A.D. 128); *SB* 7515.803 (A.D. 155)
παρέλαβος (for παρέλαβες) *PMich.* 552.11 (A.D. 131)
ἐπῆλθον (for ἐπῆλθεν) *PMich.* 174.11 (A.D. 145-7)
[ἀ]λληλονγύ[ης] (for ἀλληλεγγύης) *PStrassb.* 204.22-23: *BL* v, 137 (A.D. 161-9)
τὸ πλῆρος (for πλῆρες) *POxy.* 1670.13 (3rd cent.)
σήμορον (for σήμερον) *PMerton* 32.2 (early 4th cent.)
ὀβολίσκου (for ὀβελίσκου) *PSI* 698.16 (A.D. 392)

b) In accented syllables:

ἀβαρός (for ἀβαρές) *POxy.* 1757.14,18 (A.D. 138+)
δόδωκα (for δέδωκα) *SB* 7274.8 (A.D. 113)
τετελευτηκόναι (for -κέναι) *PLBat.* vi, 29.22 (A.D. 133)

This interchange of ο and ε is found elsewhere in Greek but not as frequently as in the papyri.[1] The fact that it occurs usually before /s/ or /n/ indicates that

[1] There is an interchange of ο and ε in certain words in the Att. inscrr., w. ε > ο before ρ in the later forms Ὀρχιεύς, Ὀρχόμενος (the opposite occurs in Κέρκυρα 4th cent. B.C.) and by assimilation in ὀβολός (*MS*, 22-23). In the Ptol. papp., there is an occ. change of ε > ο esp. before -ν or -ς, and of ο > ε in unstressed syll. esp. before -ς (Mayser i², 1, 45, 72-73). Fr. the mag. tablets, cf. ἕν for ὅν Audollent #249 a.6, Carthage (prob. 2nd cent.); κατόχων for κατέχων 252.26, Carthage (Rom.).

the sound represented by ο was centered to /ə/, as /ε/ was raised to /i/ in the same conditions.[1] In terms of bilingual interference, the confusion of ο and ε in unaccented syllables reflects the lack of any /o/ sound (no letter ο) in unstressed syllables in Coptic;[2] the interchange in accented syllables might reflect an /ə/ value of Greek ο. Egyptian /ə/ is rendered by Greek ο in early transcriptions in stressed as well as unstressed syllables; transcriptions by Greek ε are generally later.[3] There are only rare interchanges of ο and ϵ in Coptic.[4]

Note. εἴσοπτρον appears in the form ἔσοπτρον or ὄσυπτρον with several orthographic variants:[5]

ἔσοπ<τ>ρον *PMerton* 71.4 (A.D. 160-3)
ἔσοπτρον *CPR* 27 = *StudPal.* xx, 15.10 (A.D. 190); *POxy.* 2603.3, with ἐσόπτρου 14,17 part. rest. (4th cent.)
osyptrum *PMich.* 434.12 (early 2nd cent.)
ὄσυπτρον *POxy.* 2787.4 (2nd cent.); *POxy.* 1449.19 (A.D. 213-17); *POslo* 46.7 (3rd cent.)
ὀσύπτρου *PFuadCrawford* 8.6 (2nd cent. ?)
ὄ̣σιπτρον *PStrassb.* 237.16 (A.D. 142)
ὄσοπτρον *POxy.* 978 descr. (3rd cent.)

b. ω × ε.

1) ω > ε:

ἐρε͂σθαι (for ἐρρῶσθαι) *PPrinc.* 73.17 (3rd cent.)
ἐβδομκιμέτατος (for εὐδοκιμώτατος) *PMerton* 47.1 (late 6th/7th cent.)
cf. ἀρραβε͂να (for ἀρραβῶνα) *PColt* 33.22 (6th cent.)

2) ε > ω:

κατὰ τὸ̣ [π]αντελῶς (for παντελές) *POxy.* 1933.15 (6th cent.)

c. ο/ω × αι.

1) ο > αι:

λεγιῶναις (for λεγιῶνος) *POxy.* 43 R ii.22; v.23,26; corr. v.13 (A.D. 295)

2) ω > αι:

πραίτων (for πρῶτον) *POxy.* 735.9 (A.D. 205)

3) αι > ο:

ὑγιόν(ειν) (for ὑγιαίνειν) *PSI* 1404.2 (A.D. 41/42)

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[1] See above, pp. 249-62.
[2] See the Copt. vowel quadrilaterals below, pp. 332-3.
[3] Vergote, *Oplossing*, 11-12; *Gram.* Ia, § 52.
[4] Kahle, VIII, § 4, 6E; 24, 43A; Böhlig, 106.
[5] Cf. ὀσυπτρομαντιῶν *PGM* 13.752 (A.D. 346).

d. ο/ω > η.

1) ο > η:

τεκτηνικῷ (for τεκτονικῷ) *PLond.* 154 (ii, 178-80).21 (A.D. 68)
λακονησήμου (for λακωνοσήμου) *PMerton* 71.7-8 (A.D. 160-3)
cf. Ὑδρηχόῳ (for Ὑδρο-) *POxy.* 1476.4, horoscope (A.D. 260)

2) ω > η:

ὑποζήνην (for ὑποζώνιον) *SB* 7357 = *PMich.* 206.15 (2nd cent.)

5. Interchange of ο (ω) with υ (οι).

a. ο × υ.

1) ο > υ.

a) In unaccented syllables:

εὔτυκῶ (for εὐδοκῶ) *PRyl.* 160b.5 (A.D. 37)
ὑπότε (for ὁπότε) *PMich.* 276.30 (A.D. 47)
ὑπώρα (for ὀπώρα) *POxy.* 298.38 (1st cent.)
ἐνδυμεν[ε]ίας (for ἐνδομενίας) *BGU* 1655.43 (A.D. 169)

b) In accented syllables:

χιρύς, παντύς (for χειρός, παντός) *PMich.* 263.33,35 (A.D. 35/36)
χειρύς (for χειρός) *BGU* 713.7,14 (A.D. 41/42); *SB* 5110 = *PRyl.* 160d, ii.12 (A.D. 42)
μητρύς (for μητρός) *PRyl.* 160b.6 (A.D. 37)
ὀρύβου (for ὀρόβου) *SB* 7365.5 abbrev. (A.D. 114); *PMerton* 15.32 abbrev., part. rest. (A.D. 114); *SB* 8991 = *PCairIsidor.*71.7 (A.D. 314); *PAbinn.* 80 R.6 (ca. A.D. 346)

2) υ > ο:

ὀπόμνημα (for ὑπο-) *PRyl.* 139.26-27 (A.D. 34)
ὑδρόσασθαι (for ἱδρύσασθαι) *PLond.* 1912.34 (A.D. 41)
σόμβυλα (for σύμβολα) *PMichael.* 11.3 (1st/2nd cent.)
Ὀξορυγχίτου (for Ὀξυ-) *WO* 1097.2-3 part. rest. (A.D. 185); *WO* 1115.3 abbrev. (A.D. 195); sim. *PHeid.* 237.10 (mid 3rd cent.: *BL* v, 43) cf. Ὀξυρογχιτῶν *StudPal.* iii, 97.1 (6th cent.)

An interchange of ο and υ is found elsewhere in Greek as a conditioned change.[1]

[1] Final ο is normally written υ (= /u/) in Arc. and Cypr. as is ο in final syll. in Pamph., and the occ. raising of ο > υ before a nasal is found in Arc. Cypr. Lesb. etc. (Buck, *GD*, § 22; Schwyzer i, 182, 275; Lejeune, § 230). In the Att. inscrr., a fluctuation of ο and υ is found only in πρυτανεία and πρυτανεύω (*MS*, 24). υ is replaced by ο once at Delphi (Rüsch, 153). In the Ptol. papp., there is only a sporadic interchange of ο and υ in the 3rd and 2nd cent. B.C. (Mayser i², 1, 75, 82-83). Cf. fr. the mag. tablets τύν (for τόν) Audollent #85 a.1, Boeotia (n.d.); Ξένυς for Ξεῖνος 80.303, Euboea (5th cent. B.C.).

Some of the examples in the papyri may be explained by analogy (ὑπότε, ὑπώρα[1]), dissimilation (ὀρύβου, cf. ὀρέβου above, p. 290), or transposition (σόμβυλα); others may represent the raising and closing of /o/ before /s/.

b. ω × υ.

1) ω > υ:

τῦ (for τῶν) *PMich.* 250.3 (A.D. 18)
  τῦν̣ (for τῶν) *PMich.* 252.10 (A.D. 25/26)
ἐνύδιν (for ἐνώτιον) *SB* 7660.25 (ca. A.D. 100)
  ἐνυδίων *PLBat.* vi, 21.19, with ἐνύδιον 28,32 (A.D. 122)
ἀπο]δώσυ (for -δώσω) *PCairIsidor.* 95.15 (A.D. 310)
κεφαλευτῆς (for κεφαλαιωτῆς) *OMich.* 850.2 (late 3rd/early 4th cent.)
σοφυτάτῳ (for σοφωτάτῳ) *POxy.* 1837.8 (early 6th cent.)

2) υ > ω:

σωμφο[νημένην (for συμ-) *SB* 7612 = *PMed.* 60.19 (2nd cent.)

c. οι > ω:

μέτωχω (for μέτοχοι) *BGU* 819.2 (A.D. 202/3)

[1] Cf. P. Jernstedt, *ZAS* 64 (1929), 129-35; Kapsomenos, "Ἔρευναι," 329-32.

IX. VOWELS IN COMBINATION

A. CONTRACTION[1]

The Koine in general follows the Attic practice of contraction,[2] but new types are introduced, anticipating the widespread contraction of Modern Greek, in which vowels which have come into contact through the loss of an intervening consonant are normally simplified, e.g., λέτε from λέγετε.[3]

1. Hellenistic contraction.

In late Greek, with the identification of ει and ι in /i/, a new form of contraction arose, by which two contiguous /i/ vowels are simplified to a single /i/ represented in writing by ι or ει.[4] This is reflected in the spelling of the following words.

a. πεῖν or πῖν are the normal spellings; πιεῖν is read only once:[5]

πεῖν *PFlor.* 101.8 (A.D. 91?); *PGiss.* 31 i.3,11 (late 2nd cent.); *OTait* 1834.3 (2nd/3rd cent.); *PFouad* 29.5 (A.D. 224); *PLond.* 1170 (iii, 193-205) V.146, etc. (A.D. 258-9); *POslo* 146.5 (4th cent.); *PApoll.* 97 A.1, etc., abbrev. (A.D. 703-15); etc.

πῖν *PCairGoodsp.* 30 xxiv.19, etc. (A.D. 191-2); *PRyl.* 627.274; 630.261, etc. (A.D. 317-23); *PSI* 718.5 (4th/5th cent.); *POxy.* 1945.2 (A.D. 517); *PSI* 953.59 (6th cent.); *BGU* 551.6 (Arab.); etc.

πιε[ῖ]ν *POxy.* 1297.11 (4th cent.)

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[1] Schwyzer i, 246-54; Lejeune, § 219-21, 260-71; Buck, *GD*, § 40-45; *MS*, 73-74; Schweizer, 100-2; Nachmanson, 68-71; Hauser, 51-53; Rüsch, 166-72; Mayser i², 1, 127-32; Crönert, 34-35; *BDF*, § 31; Psaltes, 60-65.

[2] For contraction in nouns, adjectives, and verbs, see Morphology.

[3] See further Schwyzer i, 254; Jannaris, § 146-54; Mirambel, *Gram.*, 29-30.

[4] Hell. contr. is of the same type as -ιι > -ι as Att. Δί > Διί (Schwyzer i, 248). It is found at Pergamum and elsewh. in Asia Minor, although not at Magnesia (Schweizer, 101; Nachmanson, 69-71). There are only 2 exx. in the Herc. papp. + 2 exx. of ιι > ι (Crönert, 34-35). It is still relatively rare in the Ptol. papp. (Mayser i², 1, 64-65), but πεῖν and ταμεῖον are found in most codd. of the NT (*BDF*, § 31.2).

[5] Both spellings are found in the mag. papp., e.g., πεῖν *PGM* 7.738 (3rd cent.); πιεῖν *PGM* 4.2594 (4th cent.).

b. ταμεῖον is much more common than ταμιεῖον:

ταμεῖον *SB* 4425 iii.13, with τα]μιεῖον iii.14 (2nd cent.); *BGU* 75 ii.12 (2nd cent.: *BL* i, 15); *PSI* 927.12 (late 2nd cent.); *POxy.* 1405.8 (A.D. 236/7: *BL* iv, 61); *POxy.* 2132.10 (ca. A.D. 250)

ταμῖον *PMich.* 295.4; 298.4, so duplic. *PSI* 913.3 (1st cent.); *PMich.* 620.41,76 (A.D. 239/40); *PBeattyPanop.* 1.200,206 (A.D. 298); etc.

ταμείου *SB* 4322.7 (A.D. 84-96); 7472 = *PLBat.* i, 1.39 (A.D. 164); *PSI* 683.12 (A.D. 199); *PTebt.* 288 = *WChr.* 266.9 (A.D. 226); *PLond.* 214 = *WChr.* 177.5 (A.D. 270-5); *PBeattyPanop.* 1.167, 170, etc. (A.D. 298); etc.

ταμίου *BGU* 1115.41 (13 B.C.); *PSI* 909.3,14 (A.D. 44); *PMich.* 298.5, so duplic. *PSI* 913.4 (1st cent.); *POxy.* 2472.11,14 (A.D. 119); 2665.16 (A.D. 305/6); *PCairIsidor.* 72.18 (A.D. 314)

ταμείῳ *PRyl* 84.7 (A.D. 146); *PMich.* 616.12 (ca. A.D. 182); *PGen.* 16 = *WChr.* 354.14 (A.D. 207); *POxy.* 58 = *WChr.* 378.9 (A.D. 288); *PStrassb.* 172.6 (early 4th cent.); etc.

ταμίωι *PFay.* 300 descr. (late 1st cent.); sim. *PRyl.* 114.25 (ca. A.D. 280); *POxy.* 71 i = *MChr.* 62.15 (A.D. 303); *POxy.* 2666 ii.7 (ca. A.D. 308/9); etc.

ταμῖα *BGU* 1037.8,25 (A.D. 48: *BL* i, 90); *BGU* 2033.10 (A.D. 94)

ταμείων *PStrassb.* 191.3 (A.D. 165)

ταμιείου *BGU* 106 = *WChr.* 174.5 (A.D. 199); *PFlor* 47 i = *MChr.* 146.6 (A.D. 213/17); *POxy.* 2279.6 (ca. A.D. 215); *POxy.* 2106.22 (early 4th cent.); etc.

ταμιείῳ *PAberd.* 51.5 (mid 2nd cent.); *PThead.* 15.17 (A.D. 280/1); *PCairIsidor.* 126.8 part. rest. (prob. A.D. 308/9); *SB* 9253.10 (early 4th cent.)

ταμιΐοις *PMichael.* 41.64 (A.D. 539/54)

c. ὑγεῖα is the usual spelling, but ὑγίεια is still found:[1]

ὑγείας *SB* 6265.10 (late 1st cent.); *PGiss.* 23.7 (ca. A.D. 117); *PMich.* 496.6 (2nd cent.); *PIFAO* ii, 15.5 (3rd cent.: *ZPE* 6 [1970], 32); *BGU* 728.15 (Byz.)

ὑγίας *PMich.* 481.36 (early 2nd cent.); *PBrem.* 61.40 (ca. A.D. 117); *POxy.* 930 = *WChr.* 138.13 (2nd/3rd cent.); *PIFAO* ii, 40.13 (3rd cent.); *BGU* 948.3 (prob. 4th/5th cent.); *POxy.* 158.5 (6th/7th cent.); etc.

ὑγύας *PRossGeorg.* iii, 10.25 (4th/5th cent.)

ὑγεῖαν *PMich.* 497.9 (2nd cent.)

ὑγῖαν *PTebt.* 413.3 (2nd/3rd cent.); *POxy.* 935 = *WChr.* 119.11 part. rest. (3rd cent.); sim. *PHarris* 107.10, cf. 17 (3rd cent. ?)

[1] For the spellings ὑγῆ, etc., see above, p. 71. The contr. spellings ὑγεῖα, etc., are found fr. ca. the 2nd cent. B.C. (*LSJ*, s.v. ὑγίεια).

ὑγίεια *PMich* 243.9 (A.D. 14-37)

ὑγιείας *PAmh.* 133 = *PSarap.* 92.18 (ca. A.D. 117); *PGiss.* 17 = *WChr.* 481.4 (ca. A.D. 117-38); *PHermRees* 2.25 (4th cent.); *POxy.* 2731.19 (4th/5th cent.); *SB* 4323.4, sim. 6 (Byz.); *POxy.* 1861.4 (6th/7th cent.); *SB* 9287.5 (7th cent.)

ὑγίειαν *PHermRees* 5.9 (4th cent.); *PFlor.* 296.2 (6th cent.); *PGrenf.* ii, 91.3; 92.4,5 (6th/7th cent.); *SB* 9286.2,6 (7th cent.)

d. ἐπιεικής and its derivatives tend to be contracted only during the Roman period:

ἀνεπικές *SB* 5275.7 (A.D. 11)

ἐπικές *POxy.* 1218.5 (3rd cent.)

ἐπικίας *PMich.* 175.22 (A.D. 193); cf. *SB* 1007.9, inscr. (A.D. 69-79)

ἐπεικείας *PBeattyPanop.* 1.264, with ἐπιεικείας 88, 230, etc. (A.D. 298)

ἐπικέστερον *PTebt.* 484 descr. (ca. A.D. 14)

ἐ̣π̣ι̣κ̣εστάτῳ *POxy.* 1663.5-6 (2nd/3rd cent.)

ἀνεπιεικεῖς *SB* 5231.6 (A.D. 11)

ἐπιείκια *PAntin.* 192.12 (4th cent.)

ἐπιεικείας *PLond.* 231 = *PAbinn.* 9.10 (ca. A.D. 346); *PHermRees* 55.1 part. rest. (4th cent.); *PCairMasp.* 151-2.188 (A.D. 570)

ἐπιεικίας *PMerton* 90.13 (ca. A.D. 310); *CPR* 19 = *StudPal.* xx, 86.15, sim. 24 (A.D. 330); *SB* 4513.5 (prob. A.D. 369/70); 7518.16 (4th/5th cent.); *PMon.* 8.6 (prob. late 6th cent.)

ἐπιηκείας *PLond.* 1394.22 (A.D. 709/10?); 1349.8 (A.D. 710)

ἐπιεικείᾳ̣ *PAmh.* 141 = *MChr.* 126.16 (A.D. 350); *PSI* 86.10 (A.D. 367/75); *PLips.* 39 = *MChr.* 127.14 (A.D. 390)

ἐπιεικίᾳ̣ *POxy.* 2133.4 (late 3rd cent.); *PCairIsidor.* 70.12-13 (ca. A.D. 310); *PLips.* 65 = *WChr.* 404.11 (A.D. 390); etc.

ἐπιείκιαν *POxy.* 67 = *MChr.* 56.6 (A.D. 338); *PLips.* 35.18 (ca. A.D. 375); sim. *PCairMasp.* 295 i.20, etc. (6th cent.); etc.

ἐπιεικῶς *POxy.* 1414.23 (A.D. 270-5); *PCairMasp.* 295.i.10 (6th cent.)

ἐ̣πιεικεστάτους *POxy.* 705 = *WChr.* 153.42 (A.D. 199/200)

cf. ἐπιει[κ]εστά(της) *PColt* 33.5 (6th cent.)

e. The establishment suffix -εῖον added to *i*-stems is usually contracted with the -ι- of the stem:

Ἰσείο(υ) *POxy.* 2272.68,69, sim. 66 (2nd cent.)

Ἰσίου *BGU* 734 ii.39 (3rd cent.)

Ἡσ̣ί̣ο̣υ *POxy.* 1453.6 (30/29 B.C.)

Εἰσήου *OMeyer* 81.5 (A.D. 23)

Ἰσίῳ *POxy.* 35 R.13 (A.D. 223)

Ἰσῖν *POxy.* 1155.18 (A.D. 104)

Ἰσιεῖον *POxy.* 1465.5 (30 B.C.-A.D. 14); cf. Ἰσιεῖν *SB* 3556.3, mummy label (n.d.)

Ἰσιήου *PMich.* 322 a.10 (A.D. 46); *PMich.* 307.3 (1st cent.)

Σαραπείου *PFouad* 44.13 (A.D. 44); *PRyl.* 156.2 (1st cent.); *POxy.* 242.12 (A.D. 77); 104.12 (A.D. 96); *PLond.* 1177 (iii, 180-90).51 (A.D. 113); *POxy.* 98.7 (A.D. 141/2); *StudPal.* v, 127 = xx, 68 IV ii.9 (3rd cent.); etc.
Σαραπίου *POxy.* 243 = *MChr.* 182.14 (A.D. 79); *POxy.* 247.20 (A.D. 90); 1105.7 (A.D. 81-96); *SB* 9372.6 (2nd cent.); sim. *POxy.* 186 descr. (3rd cent.); *StudPal.* v, 7 = xx, 58 ii.8 (ca.A.D. 265/6); etc.
Σαραπείῳ *POxy.* 2592.3 (late 1st/2nd cent.); *POxy.* 110 = *WChr.* 99.3 (2nd cent.); *POxy.* 923.14 (late 2nd/early 3rd cent.); etc.
Σαραπίῳ *POxy.* 43 V = *WChr.* 474 ii.5,7 (ca. A.D. 295)

Σαραπιῖον *POxy.* 736.25 (ca. A.D. 1)
Σαραπιείου *SB* 9289.4 (6/5 B.C.); *POxy.* 267 = *MChr.* 281.3 (A.D. 36); *POxy.* 264 = *MChr.* 266.6 (A.D. 54); *POxy.* 99.6,16 (A.D. 55)
Σαραπιήου *POxy.* 254.5 (ca. A.D. 20); *PFlor.* 370.8 (A.D. 132); *StudPal.* xx, 83 iv.11 (3rd/4th cent.)

f. Contraction of two /i/ vowels in other words and forms:

καταχωρεῖν (for καταχωριεῖν) *BGU* 981 i.8 (A.D. 78)
κ]αταχωρεῖ (for καταχωριεῖ) *PLond.* 306 = *WChr.* 263.15 (A.D. 145)
ἀποκλεῖν (for ἀποκλείειν) *POxy.* 265.14 (A.D. 81-95)
διασεῖν (for διασείειν) *PMich.* 174.10 (A.D. 145-7)

2. Contraction of other front vowels.

a. Contraction of two /y/ vowels:

ἔνγυ (for ἔγγυοι) *SB* 10535.34 (ca. A.D. 30); *BGU* 713.35 (A.D. 41/42)
ἀλληλένγυ (for ἀλληλέγγυοι) *PMich.* 329-30.14 (A.D. 40)

b. Contraction of /y/ and /i/:

πεῖν (for ποιεῖν?) *PFouad* 27.33 (A.D. 44)
ἀντιπεῖν (for -ποιεῖν) *PMon.* 11.56 (A.D. 586)
σταυροποῖαν (for -ποιίαν) *POxy.* 2339.25 (1st cent.)
ἀρτωπίας (for ἀρτοποιίας) *POxy.* 2017.10 (5th cent.)

c. Omission of -η- in forms of ποιῶ and derivatives. This probably indicates the contraction of the vowel represented by η with the preceding /y/ represented by οι.[1]

[1] Cf. Dieterich, 44. Hatzidakis, *Einl.*, 397, explains these spellings as representing a new by-form ποίζω. Sim. loss of η is found in the mag. tablets (Audollent #1a.12; 8.14, Cnidus [2nd/1st cent. B.C.]), in the mag. papp. (*PGM* 4.2257 [4th cent.]), and in the Ptol. papp. (Mayser i², 1, 52). The explanations offered by Mayser (*ibid.*), *BDF* (§ 30.2), etc., in terms of Hell. contr. of πο-ιη-[po-iī > po-ī] or itacism πο-η [po-ī] are untenable in view of the occ. change of οι > ῠ in this word; see πυήσειν, etc., above, p. 200.

ποῖσαι, ποίσει, ποίσης (for ποιῆσαι, ποιήσει, ποιήσης) *BGU* 1079 = *WChr.* 60.13,18,31-32 (A.D. 41)
ποίσης (for ποιήσης) *PMich.* 202.8 (A.D. 105)
ποίσῃ (for ποιήσῃ) *PPrinc.* 70.9, with ποιήσις 4-5 (2nd/3rd cent.)
ποισάτω (for ποιησάτω) *PMich.* 479.12 (early 2nd cent.)
ποῖσο[ν] (for ποίησον) *PMich.* 481.16, with ποιήσ[ι]ς 11 (early 2nd cent.)
ποίσας (for ποίησας) *BGU* 48.14 (2nd/3rd cent.?: *BL* i, 11)
ποίσεις (for ποιήσεις) *PBaden* 43.26 (3rd cent.)
ποίσω (for ποιήσω) *CPR* 39 = *MChr.* 275.19 (A.D. 266)
ποίσει (for ποιήσει) *PAmh.* 144.21 (5th cent.)
πεποῖκες (for πεποίηκες) *PWürzb.* 21 A.14 (2nd cent.)
πεποῖκα (for πεποίηκα) *BGU* 1675.5, with ποίσῃ for ποιήσῃ 10 (prob. 2nd cent.)
πεποῖκε (for πεποίηκε) *SB* 8027.6 (2nd/3rd cent.)
πεποίκατε (for πεποιήκατε) *POxy.* 1489.5 (late 3rd cent.)
πεποικέναι (for πεποιηκέναι) *PLond.* 403 = *PAbinn.* 49.15 (A.D. 346)
cf. πεποικαίνε *PDura* 32.20 (A.D. 254)
ἐνποίσεως (for ἐμποιήσεως) *PSI* 916.8 (1st cent.)
λογοπυσαμένου (for -ποιησαμένου) *PFouad* 27.23, with πεῖν for ποιεῖν? 33 (A.D. 44)
cf. πῆσον (for ποίησον) *PHermRees* 15.6, with πήει for ποίει 10 (late 4th/early 5th cent.)
cf. also ἀλληλυνκῆς (for ἀλληλεγγύης) *PMich.* 304.8 (A.D. 42?)
μετεγυτοῦ (for μετεγγυητοῦ) *SB* 9593.8 (6th/7th cent.)
ἰχθυρᾶς (for ἰχθυηρᾶς) *PTebt.* 359.5 (A.D. 126)

3. Contraction of two /a/ vowels.

a. For the contraction of Attic ἐλάα to ἐλᾶ, etc., see αι > α above, pp. 196-7.

b. Ἰσαάκ is usually contracted to Ἰσάκ, including in declinable forms:

Ἰσάκ *BGU* 173.5 (A.D. 250); *POxy.* 1747.50 (late 3rd/early 4th cent.); *POxy.* 1429.3 (A.D. 300); *PLond.* 252 = *PAbinn.* 72.18 (ca. A.D. 350); *PAmh.* 143.6 (4th cent.); *PLBat.* xiii, 15.19 (A.D. 435); *StudPal.* viii, 760.3 (5th cent.); *PCairMasp.* 89 V.12 (6th cent.); *BGU* 686 = *StudPal.* viii, 1145.3 (Arab.); etc.
Ἰσάκεως *BGU* 715 i.7 abbrev.; ii.9 (A.D. 101/2)
Ἴσακος, Ἰσακίου *PFlor.* 279.3,25, with Ἰσάκ 20,24 (A.D. 514)
Ἰσάκου *StudPal.* iii, 552.2 (6th cent.)
Ἰσακίῳ *StudPal.* viii, 1197.1 (6th cent.)
Ἰσαάκ *StudPal.* iii, 24.5 (6th cent.); viii, 793.1 (6th cent.); 976.1 (6th cent.); *PCairMasp.* 359 ii R.6; v R.10 (Arab.); *PLond.* 1412 passim (A.D. 699-705); 1447.137,187 (A.D. 685-705)

4. Contraction of two /o/ vowels:

φλῶς (for φλοός) *PMich.* 313.26 (2nd hand), corr. 13 (1st hand) (A.D. 37)
ὑπερῷν (for ὑπερῷον) *BGU* 1575.8 (A.D. 189/90)
πατρῷν (for πατρῴων) *PCairIsidor.* 63.10, with πατρο̃ν for πατρῴων 17 (A.D. 296+)
ἁγνῶ (for ἁγνοῶ) *PAmh.* 152.14 (5th/early 6th cent.)
νῶν (for νοῶν) *POxy.* 2283.7 (A.D. 586)

Note. A converse doubling of /o/ sometimes occurs:

χρωωμένους (for χρωμένους) *POxy.* 1029.25 [only mistake] (A.D. 107)
ἀδελφῶων (for ἀδελφῶν) *BGU* 1619.16 (2nd cent.)
τυπῶων (for τυπῶν) *PGiss.* 54 = *WChr.* 420.14 (4th/5th cent.)
ὁλόογραφ[ον (for ὁλόγραφον) *PAntin.* 107.2 (6th/7th cent.)
ἐπιτρέπωω (for ἐπιτρέπω) *SB* 7240.16 (A.D. 697/712)

5. Other contractions.

a. The Attic spelling νουμηνία occurs throughout the Roman and Byzantine periods, but νεομηνία is also used from the end of the first century A.D. on and νευμηνία sometimes also occurs:[1]

νουμηνίας *BGU* 1053 = *MChr.* 105.20,24 part. rest. (13 B.C.); *POxy.* 322 = *SB* 10236.10 part. rest. (A.D. 36); *PSI* 37.5 (A.D. 82); *PJand.* 26.24-25 (A.D. 98); *PMilVogl.* 80.23 (A.D. 116); *POxy.* 1035.8 (A.D. 143); *PFlor.* 381.7 (2nd cent.); *PYale* 69.4 part. rest. (A.D. 214); *PErl.* 73.27 (A.D. 604)
νουμηνίᾳ *PMich.* 350.1,2 (A.D. 37); *BGU* 183 = *MChr.* 313.1 part. rest. (A.D. 85); *PLBat.* vi, 16.22 (A.D. 116); 21.1,38 (A.D. 122); *SB* 6995.3 (A.D. 124); *PTebt.* 392 = *MChr.* 338.21 (A.D. 134/5); *PMilVogl.* 86.4 (A.D. 139)
νουμηνίαν *BGU* 1202.11 (18 B.C.); 1156.11 (15 B.C.)
νεομηνίας *PWürzb.* 11.6 (A.D. 99); *POxy.* 34 V = *MChr.* 188 ii.13 (A.D. 127); *BGU* 1021.10 (3rd cent.); *SB* 8998 = *PMed.* 55.8 (A.D. 307); *PSI* 466.8 (A.D. 360); *PSI* 1108.10 (A.D. 381); *POxy.* 1037.8 (A.D. 444); *POxy.* 1958.8 (A.D. 476); *PMerton* 124.7 (A.D. 520); *POxy.* 1038.17 (A.D. 568); etc.
νεομηνία *PFlor.* 318.11 (A.D. 212); *POxy.* 1945.5 (A.D. 517); *BGU* 368.6 (A.D. 615); *BGU* 749.9 (Byz./Arab.)

[1] νουμηνία Ar. Th. etc.; νεομηνία Pi. Hdt. Gal.; νευμηνία inscr. Cos (4th/3rd cent. B.C.) (*LSJ*, s.v. νουμηνία). νουμηνία is the normal spelling in the Ptol. papp., once written νομενία (Mayser i², 1, 128-9); it predominates in codd. of LXX and NT (*BDF*, § 31.1), and is found excl. at Delphi (Rüsch, 171) and also occurs in the mag. papp., e.g., *PGM* 4.787,2389 (4th cent.), w. νεομηνίᾳ 13.30, sim. 387-8 (A.D. 346).

νεομηνίᾳ *PFouad* 30.40 (A.D. 121); *BGU* 859.6 (2nd cent.); *BGU* 86 = *MChr.* 306.11 (A.D. 155); *SB* 4370.4 (A.D. 228/9); *PLBat.* xiii, 1.10 (A.D. 454); *PCairMasp.* 87.2 (A.D. 543); 110.3,17 (A.D. 565); etc.

cf. νεωμηνίας *PTebt.* 372.3 (A.D. 141); *POxy.* 1116 = *WChr.* 403.12 part. rest. (A.D. 363)

νεουμηνίας *POxy.* 1127.4 (A.D. 183)

νεουμηṿ[ί]ᾳ *SB* 7201.16 (A.D. 538?)

ν̣ε̣ιομηνί̣ᾳ *PCairMasp.* 127.15 & V (A.D. 544)

νευμηνίᾳ *PBrem.* 68.34 (A.D. 99); (νευμείᾳ) *BGU* 383.5 (2nd/3rd cent.); *PLond.* 1766.11 (A.D. 559); *POxy.* 1897.7 (6th/7th cent.)

νευμηνίας *PSI* 1338.4 part. rest., with νεομηνίας 10-11 (A.D. 299); *POxy.* 2715.10 (A.D. 386); *POxy.* 1129.6 (A.D. 449)

b. Attic Θεο- is much more common than Ionic-Doric Θευ- in names.[1]

c. Κερκεοσῖρις, a village in the Polemon division of the Arsinoite nome, is always contracted to Κερκευσ-:[2]

Κερκευσίρεως *PMich.* 285-6.7-8 (1st cent.); *PMilVogl.* 57.16 (2nd cent.); *StudPal.* x, 243 = xx, 43 ii.6 (2nd cent.); *WO* 1098.2 abbrev. (A.D. 186); sim. *PTebt.* 394.11-12 (A.D. 149); *PTebt.* 609 V descr. (A.D. 151/2?); *PFay.* 334 descr. (2nd/3rd cent.)

Κερκευσῖριν *PMilVogl.* 106.5 (A.D. 134); sim. *PMerton* 68.6, sim. 23 (A.D. 137); *PTebt.* 319.6,14 (A.D. 248)

d. Compounds of λᾶας/λᾶος are usually spelled λαο- in the Byzantine period, but λα- occurs sometimes in the Roman period:

λαοτόμοις *PSI* 193.1 (A.D. 566)

λαοτόμων *POxy.* 1911.166 (A.D. 557); *POxy.* 134.16,33 abbrev. (A.D. 569)

λαωτόμ(ου) *POxy.* 2206.6 (6th cent.)

cf. λαοτόμουν *SB* 4279.4, inscr. (ca. A.D. 90)

λατομίας *POxy.* 498.8-9,45 (2nd cent.); *PAlex. inv.* 463 (pp. 21-22).9 (A.D. 193-211); cf. from inscrr. *SB* 8802.8 (A.D. 82/83); sim. 1011.3 (n.d.); 8507.6 (3rd cent.)

cf. λατόμων *SB* 8580.3, inscr. (A.D. 18)

λαοξόῳ *PSI* 955.17 (6th cent.)

For examples of λαξός, etc., see Morphology I B 4.

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[1] Cf. Lejeune, § 248, Buck, *GD*, § 42.5. For exx., see Preisigke, *NB*, and Foraboschi, *Onomasticon*, s.vv. There is a sim. distribution in the Ptol. papp. (Mayser i², 1, 14).

[2] The contr. spelling is also more freq. in the Ptol. papp. (Mayser i², 1, 15).

e. Compounds of λαός are regularly spelled λαο- and -λαος, but λα- and -λας occur sporadically; for examples see Morphology I B 3.

B. VOWEL LOSS[1]

1. Before another vowel.

a. An accented ι is very frequently omitted before a back vowel, especially after a liquid or nasal. This indicates the change of /i/ to /j/ in this position,[2] with concomitant shift of the accent to the final syllable.[3]

1) In forms of κύριος, κυρία:[4]

κυροῦ (for κυρίου) *PRyl.* 160c, ii.14 (A.D. 32); *PAmh.* 112.15 (A.D. 128); *PSI* 1343.17 (5th cent.); *SB* 9138.8, with κύριν for κύριον 10 (6th cent.); *StudPal.* iii, 183.1 (6th cent.); *POxy.* 1913.26 (ca. A.D. 555?); *POxy.* 998 descr. (late 6th cent.); *SB* 9286.3 (7th cent.); etc.

κυρῷ (for κυρίῳ) *POxy.* 1720.6 (4th cent.); *SB* 5748.4, with κυροῦ 12 (Xtn.); *PSI* 973.8,13, with κῦρι 8 (6th cent.); *SB* 4919.2 (Byz.); *POxy.* 153 = *StudPal.* iii, 286.4,5 (A.D. 618); cf. *PColt* 53.9 (before A.D. 608?); 58.6 (late 7th cent.)

κυρᾶ (for κυρία) *SB* 9746.28, corr. 36 (early 4th cent.); *POxy.* 1300.5,8 (5th cent.); *PSI* 1429.6 (6th cent.); *PVindobWorp* 15.1 (6th/7th cent.); *StudPal.* xx, 223.2,5 (6th/7th cent.); *BGU* 47 = *StudPal.* iii, 265.1 (7th/8th cent.); *PLond.* 1469 descr. (7th/8th cent.); etc.

κυρᾶς (for κυρίας) *POxy.* 1329 descr. (A.D. 400: *BL* i, 335); *PStrassb.* 394.3 (5th/6th cent.); *PGrenf.* ii, 97 = *StudPal.* iii, 318.1 (6th cent.); *StudPal.* iii, 137.1 (6th cent.); *PCairMasp.* 279.7 (ca. A.D. 570); *POxy.* 1829.21 (ca. A.D. 577-9?); cf. *SB* 2654, inscr. (Rom.)

κυρᾷ (for κυρίᾳ) *PGrenf.* i, 61.4,5 (6th cent.); *SB* 4661.6,8,17, with adj. κυρία 15 (Byz.)

κυρᾶν (for κυρίαν) *POxy.* 1933.12 (6th cent.); sim. *POxy.* 1901.31,36,67, with Κυρίαν pers. name 41, sim. 43,53 (6th cent.); 1940.4 (6th/7th cent.); *StudPal.* xx, 223.3 (6th/7th cent.); *PSI* 1430.10 (7th cent.)

κυροῦς (for κυρίους) *PHermRees* 46.2 (4th cent.)

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[1] Schwyzer i, 259-60, 280; Lejeune, § 206; *MS*, 69; Schweizer, 97; Nachmanson, 65-66; Hauser, 150; Rüsch, 148-50; Mayser i², 1, 123-7; Psaltes, 31-36, 43-49.

[2] Cf. the om. of intervocalic γ = /j/ above, pp. 71-72, and the change of /i/ > /j/ in epenthesis (Schwyzer i, 269-74).

[3] In the transition from ancient to MGr., paroxytone 1st decl. fem. nouns in -ία, -εία, -έα, and -αία became oxytone, e.g., καρδιά, μηλεά, w. the preceding /i/ > /j/. See Jannaris, § 155, 271; Dieterich, 45-63; Thumb, *Hell.*, 97; *Handbook*, § 9, 10; Hatzidakis, *ZVS*, 34 (1895), 108-25; Schwyzer i, 244-5.

[4] For the development of a new decl. type [kýris, kyrjú, kyrjó, kýrin, kýri], see Morphology I B 2.

cf. the adj. κυρᾶ (for κυρία) *PMich.* 276.19, corr. 20 (A.D. 47); *PLond.* 1795.11 (6th cent.)

2) In the gen. and dat. sg. of Latin names of the second declension masc.:

Τιβεροῦ (for Τιβερίου) *OTait* 475.3; 597.2 (A.D. 45); *WO* 1385.2 (A.D. 45)
Οὐαλερῷ (for Οὐαλερίῳ) *PMich.* 551.13 (A.D. 103)
Οὐαλεροῦ (for Οὐαλερίου) *PNYU* 13.15 (ca. A.D. 330-40)
Φλαουῷ (for Φλαουίῳ) *POxy.* 2571.1 (A.D. 338)
Σεπτιμῷ (for Σεπτιμίῳ) *PLBat.* xiii, 13.1 (A.D. 421)
Αὐρηλοῦ (for Αὐρηλίου) *SB* 7996 = *PSI* 1239.24 (A.D. 430)

3) Before the gen. sg. -ου ending in other nouns of the second declension:

ἀργυροῦ (for ἀργυρίου) *PYale* 63.19 (A.D. 64); *CPR* 1 = *StudPal.* xx, 1.30 (2nd hand), corr. 13 (1st hand) (A.D. 83/84); *PTebt.* 391.16, corr. 24 (A.D. 99); *PAmh.* 112.11,15 (A.D. 128); *BGU* 1682.6 (ca. A.D. 300); *PFlor.* 103.13 (4th cent.?)
ὀψωνοῦ (for ὀψωνίου) *PMich.* 224.3505, corr. elsewh. (A.D. 172-3)
οἰναροῦ (for οἰναρίου) *SB* 9251.5 (2nd/3rd cent.)
γυμμνασοῦ (for γυμνασίου) *SB* 7989 = *PSI* 1240 a.10, with γυμμησίου 17 (A.D. 222)
μισθαροῦ (for μισθαρίου) *PMeyer* 20.22 (1st half 3rd cent.)
δηναροῦ (for δηναρίου) *POxy.* 1142.5-6,6, with δηναρί<ου> 8, δηναρί-[ο]υ 9, δηνάρια 4-5 (late 3rd cent.)
Λικιννοῦ (for Λικιννίου) *PCairIsidor.* 90.16 (A.D. 309); 82.16 (A.D. 318)
ἐποικοῦ (for ἐποικίου) *PCairGoodsp.* 15.3: *BL* i, 173 (A.D. 362)
σχοινοῦ (for σχοινίου) *PGen.* 66 = *WChr.* 381.13 (A.D. 374)
πωμαροῦ (for πωμαρίου) *PSI* 774.12 (5th cent.)

4) Before the gen. sg. -ας ending in nouns of the first declension:

νομαρχᾶς (for νομαρχίας) *PTebt.* 350.4 (A.D. 70/71)
ὀψᾶς (for ὀψίας) *POxy.* 528.5 (2nd cent.)
ὁλοκληρᾶς (for ὁλοκληρίας) *PLond.* 418 = *PAbinn.* 7.3 (ca. A.D. 346)
σωτηρᾶς (for σωτηρίας) *PHermRees* 11.9 (4th cent.)
Ἀλεξανδρᾶς (for Ἀλεξανδρείας) *POxy.* 1116 = *WChr.* 403.11 (A.D. 363)

5) Before the gen. pl. ending -ων:

μεικροκεραμῶν (for μικροκεραμίων) *PBrem.* 22.7 (ca. A.D. 117)
ἐργαστρῶν (for ἐργαστηρίων) *POxy.* 1648.33, corr. elsewh. (late 2nd cent.)
ὀσψαρῶν (for ὀψαρίων) *POxy.* 1656.10 (late 4th/5th cent.)

6) In other positions:

βιβλόν (for βιβλίον) *PMilVogl.* 66 V.11 (2nd cent.)
χωρῷ (for χωρίῳ) *PLond.* 1376.10 (A.D. 711)
cf. ἰνδικτῶνος (for ἰνδικτίωνος) *SB* 7800.7, inscr. (6th/7th cent.: *BL* iii, 195); sim. *SB* 5963.4, inscr. (Xtn.)

b. An unaccented ι is also frequently omitted before a back vowel.

1) Immediately preceding an accented vowel:

ἀπηλώτην (for ἀπηλιώτην) *PMich.* 294.2 (1st cent.)
χοινικαίων (for χοινικιαίων) *PRossGeorg.* ii, 41.49, sim. 69 (2nd cent.)
δραχμαίου (for δραχμιαίου) *PLond.* 311 = *MChr.* 237.21 (A.D. 149); *PMilVogl.* 68.15 (A.D. 154); *PSI* 1142.18 (A.D. 154); sim. *PVars.* 10 iii.31: *BL* iv, 102 (A.D. 156); *PStrassb.* 225.30 (2nd half 2nd cent.)
φακάριον (for φακιάριον *faciale*) *PRyl.* 606.36 (late 3rd cent.)
ἐπούσ(ης) (for ἐπιούσης) *PLBat.* xi, 13.12 (A.D. 372)
τράκοντα (for τριάκοντα) *StudPal.* viii, 1042.3 (6th cent.)

2) Not immediately preceding an accented vowel:

ῥᾳδουργίας (for ῥᾳδιουργίας) *BGU* 226 = *MChr.* 50.14 (A.D. 99)
ὁροδείκτῃ (for ὁριοδείκτῃ) *PMilVogl.* 52.27 (A.D. 138)
ὁρωδικτίας (for ὁριοδεικτίας) *PMerton* 31.4, sim. 10 (2nd hand), corr. 22 (3rd hand) (A.D. 307); sim. *SB* 7680 = *PCairIsidor.* 117.4; 118.4; *SB* 7628 = *PCairIsidor.* 120.5 (A.D. 309-11)
ἀρχερεύς (for ἀρχιερεύς) *PAmh.* 124 = *WChr.* 152.22,26, corr. 28 (2nd cent.); cf. *SB* 4549.2,3,5, inscr. (A.D. 226); sim. *SB* 9016 i.1; ii.1 (A.D. 160); *POxy.* 1068.4-5 (3rd cent.)
ἡμαρταβίῳ (for ἡμιαρταβίῳ) *SB* 7534 = *PLBat.* i, 5.20 (A.D. 154)
τρα[κο]σίων (for τριακοσίων) *PAmh.* 113.29 (A.D. 157)
Ἁδρανοῦ (for Ἁδριανοῦ) *PMich.* 393.3 (A.D. 158)
ἱματοπώλου (for ἱματιοπώλου) *PAmh.* 76.14 (2nd/3rd cent.)
κονχύλον (for κογχύλιον) *POxy.* 1449.21 (A.D. 213-17)
τριακόσαι (for τριακόσιαι) *PSI* 810.4 (3rd/4th cent. ?)
κεντηνάρα (for κεντηνάρια) *PCairIsidor.* 56.3,5 (A.D. 315)
σφυρίδο̣ν̣ (for σφυρίδιον) *PSI* 831.10, with πεδά (for παιδία) 22 (4th cent.: *ChrEg.* 45 [1970], 357)

c. Omission of other vowels:

ἐλουργίο(υ) (for ἐλαιουργίου) *PMich.* 123 R XI.11, corr. elsewh. (A.D. 45-47)
τρίκοντα (for τριάκοντα) *SB* 722.4 (1st cent.)
τρικοσίας (for τριακοσίας) *PMerton* 88 vii.4 (A.D. 298-301)
Τραινοῦ (for Τραιανοῦ) *POxy.* 482.32, corr. 39 (A.D. 109)
ὅμοις (for ὅμοιος) *PMich.* 473.29 (early 2nd cent.)
ὁμοίς (for ὁμοίως) *PMich.* 223.1469 (A.D. 171-2)
προστῶσι (for προεστῶσι) *PGiss.* 87.17 (ca. A.D. 117)
ἱρεύς (for ἱερεύς) *SB* 7199.11,25 (2nd cent.)
ἀρχιρατεύσαντος (for ἀρχιερατεύσαντος) *POxy.* 1694.40 (A.D. 280)
κυριεύν (for κυριεύειν) *POxy.* 1123.19 (A.D. 158/9)
ἐπιπορεύσθαι (for -πορεύεσθαι) *BGU* 825.7 (A.D. 191)

νεροῦ (for νεαροῦ, cf. MGr.) *PCairIsidor*. 49.6 (A.D. 309)
ἀξιθίς (for ἀξιωθείς) *PCairMasp*. 328 v.27, corr. vi.26 (A.D. 521)
διλάμενος (for διελόμενος) *POxy*. 2283.10 (A.D. 586)

Note 1. Spellings of ἄν for ἐάν may sometimes represent contraction or vowel loss when syntactical confusion with the particle ἄν is not a factor;[1] ἔν is also found:[2]

ἄν (for ἐάν) *SB* 9121.2, corr. 9,11 (1st cent.); *SB* 9017 (28).7 (1st/2nd cent.); *PMich*. 202.23,25 ? (A.D. 105); *PMich*. 501.13, corr. 7,18 (2nd cent.); *PMich*. 488.15 (2nd cent.); *POxy*. 1482.17 (2nd cent.); *POxy*. 932.5, corr. 7 (late 2nd cent.); *POxy*. 119.6, sim. 8,14 (2nd/3rd cent.); *POxy*. 1494.15 (early 4th cent.); *SB* 8092.2,17 (ca. A.D. 500); *Archiv* v, pp. 178-9, #34.5,7 (n.d.); etc.
ἔν (for ἐάν) *PMich*. 341.1, so duplic. *PSI* 904.2 (A.D. 47); *PTebt*. 316 = *WChr*. 148.92, with ἠάν 60 (A.D. 99); *PSI* 704.15 (2nd cent.); *PSI* 703.15 (A.D. 480)
αἴν (= ἐ<ά>ν) *POslo* 32.11 (A.D. 1); 133.7 (2nd cent.)

Note 2. The occasional substitution of ὡς for ἕως is probably syntactical.[3]

Note 3. ο is sometimes omitted in forms of λινόϋφος:

λίνυφος *POxy*. 1281.4 (A.D. 21)
λινύφῳ *SB* 8252 = *PFuadCrawford* 26.3 (1st/2nd cent. ?)
λινύφων *OTait* 1015.2 (A.D. 49); *SB* 10341.2 (A.D. 52); *WO* 23.2 abbrev. (A.D. 72)
λινυφικήν *PFouad* 37.2 (A.D. 48)
but λ[ι]νοῦφ[ο]υς *PGiss*. 40 ii = *WChr*. 22.27 (A.D. 215); etc.
λινόυφος *BGU* 128 ii.10 (A.D. 188/9); *SB* 4325 iv.13 (3rd cent.); sim. *BGU* 1069 R.13 (A.D. 243/4); *POxy*. 1303 descr. (ca. A.D. 336); *StudPal*. iii, 87.1 (6th cent.); etc.
λινοῦφων *POxy*. 1414.12 (A.D. 270-5); *PJand*. 153.5 (4th cent.); etc.
λ]ινούφῳ *PLond*. 125 (i, 192-4).21 (4th cent.)
cf. λινοέφο(υ) *PLond*. 1446.35,36 (8th cent.)

Note 4. The vowel following initial οὐ- transcribing Latin *v* is sometimes omitted in *veteranus* and *Vespasianus*:

[ο]ὐτρανῷ *PTebt*. 583 descr. (3rd cent.)
οὐτρανοῦ *SB* 5126 = *StudPal*. xx, 70.3 (A.D. 261)

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[1] For NT parallels, see *BDF*, § 107, 371.

[2] See Kapsomenakis, 35, Anm. 2.

[3] ὥς is MGr. for "until." For the confusion of ὡς and ἕως in late Gr., see *BDF*, § 455.3; Dieterich, 48-49; Jannaris, § 1488.

οὔτρα(νός) *OMich.* 989.4 (A.D. 277)

For examples of the normal spellings οὐετρανός and οὐατρανός, see above, p. 284.

Οὐσπασανός *POxy.* 35 V.6 (3rd cent.)

For examples of Οὐεσπασιανοῦ, etc., see above, pp. 247, 284.

2. Vowel loss between consonants (syncope).[1]

This occurs more frequently and in broader conditions than elsewhere in Greek,[2] probably because of the popular language in the papyri and the influence of the heavy stress accent arising through bilingual interference.

a. Loss of an unaccented (etymologically short) vowel *after* a liquid or nasal when the preceding or following syllable has the same vowel (Kretschmer's Law[3]):

Βερνίκης (place) *OTaitPetr.* 227.2 (A.D. 26); 230.2 (A.D. 28); *PSI* 690.13 (1st/2nd cent. ?); etc.

Βερνίκ(ης) (person) *BGU* 562 = *WChr.* 220.7,21, sim. 12 (A.D. 117+); *PHamb.* 8.2 (A.D. 136)

Βερνείκης (goddess) *SB* 6995.21 (A.D. 124); sim. 6996.33 (ca. A.D. 127)

Βερνεικιανοῦ (person) *BGU* 136 = *MChr.* 86.5 (A.D. 135)

Βερνικίδι (place) *PPhil.* 11.3 (A.D. 141); sim. *SB* 7200.28, etc. (2nd cent.); *BGU* 619 i.17 (A.D. 155); *BGU* 84 V.7 (A.D. 242/3); *StudPal.* viii, 810.1 (6th cent.); iii, 329 = xx, 176.3 (6th/7th cent.)

Βερνικίδιος (person) *PSI* 737.7 (2nd/3rd cent. ?)

but Βερενείκης (place) *OTaitPetr.* 224.2-3 (A.D. 6); sim. 250.3 (ca. A.D. 29); 251.3 (ca. A.D. 30-41); 267.2-3 (A.D. 43); *PHamb.* 7.3 (A.D. 132); etc.

Βερενείκης (person) *PLond.* 604 B (iii, 76-87).183 (ca. A.D. 47); *POxy.* 493 = *MChr.* 307.8, sim. 16 (early 2nd cent.); *PRyl.* 111 b.2 (A.D. 155-6+); *PSI* 1048.11 (3rd cent.); etc.

παρχωρή(σεως) (for παραχωρήσεως) *PMich.* 121 V X.14 (A.D. 42)

παρχρῆμα (for πάραχρῆμα) *PMich.* 121 R III ii.1; iv.1 abbrev. (A.D. 42); *PSI* 913.10-11 (1st cent.)

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[1] See O. Szemerényi, *Syncope* (Naples, 1964), 528-71, for conditions for syncope in pre-Hell. Gr.: only high /i u/ and mid /e o/ vowels are syncopated, and virtually only betw. single consonants, usu. before a vl. stop, nasal, or λ, usu. after a nasal, liquid, or /j/, the quantity of the preceding and following vowels being irrelevant (Ā̆CV̆CĀ̆).

[2] Syncope is found in the Att. inscrr. in Βερνίκη, etc., and σκόρδον from the 2nd cent. A.D. (*MS*, 69). It is found at Pergamum only in the Lat. loanword σκουτλάριος, but πέρσυ is found in other Asia Minor inscrr. (Schweizer, 97). Only Lat. words show syncope at Magnesia (Nachmanson, 65-66). There are some exx. of syncope at Delphi (Rüsch, 148-50), and parallel exx. are found in the Ptol. papp. (Mayser i², 1, 123-4). For further exx. of syncope in the Koine and MGr. (/i/ and /u/ are lost, less freq. /e/ and /o/, never /a/), see Dieterich, 37-40. Syncope in MGr. is directly dependent on the word accent: περπατῶ, but περίπατος (Mirambel, *Langue grecque*, 29). See further Dieterich, "Die synkope im Neugriechischen," *ZVS* 37 (1904), 407-23.

[3] *Wochenschrift für kleine Philologie* 1889 (Berlin, 1884-), #1, col. 5.

παρκομίζουσ[ι (for παρακομίζουσι) *PSI* 890.32 (3rd cent.)
κορακινδίω(ν) (for κορακινιδίων) *PMich.* 123 V VII.7 (A.D. 45-47)
ἀνδιδοῦντα (for ἀναδιδοῦντα) *BGU* 44.15 (A.D. 102)
ἀνδιδόντες (for ἀνα-) *SB* 7992 = *PSI* 1332.7 (2nd/3rd cent.)
ἀνδώσω (for ἀνα-) *PSI* 224.10 (A.D. 330)
'Αρβικοῦ (for 'Αραβικοῦ) *POxy.* 916 = *WChr.* 185.3 (A.D. 198)

Note. Syncope has become established in forms of σκόρ(ο)δον[1] and ὀρ(ό)βιον, the diminutive of ὄροβος,[2] so that it occurs even when the lost vowel would have been accented:

σκόρδων *PMich.* 123 V II.15,34 (A.D. 45-47); *POxy.* 1439.3 (A.D. 75); *SB* 7365.16 abbrev. (A.D. 114); *BGU* 1674.6 (2nd cent.); *PFay.* 72. 3-4; 75.3 (2nd/3rd cent.); *PLond.* 1170 V (iii, 193-205).117 (A.D. 258-9)
σκόρδον, σκόρδου *POslo* 133.3,10 (2nd cent.)
σκόρδ(ου) *PRyl.* 629.334 (A.D. 317-23)
σκόρδα *OTait* 2342 (Rom.)
ὄρβιον (for ὀρόβιον) *OTait* 1971.5 (A.D. 14-37 ?)
ὄρβια *BGU* 1668.2 (early Rom.); *PMilVogl.* 69 A.28, etc. (2nd cent.); etc.
ὄλβιο(ν) (for ὀρόβιον ?) *PMich.* 246.2 (mid 1st cent.)
ὀρβίω(ν) *PMich.* 619.1 (ca. A.D. 182)
ὀρβιοπολῶν *POxy.* 1432.6-7,13 (A.D. 214); sim. *PCairMasp.* 252.5 (A.D. 538); *StudPal.* iii, 31.2 (6th/7th cent.); etc.

b. Loss of an unaccented vowel *after* a liquid when the vowel of the preceding or following syllable is not identical:

ἀρθμητικοῦ (for ἀριθμητικοῦ) *PMich.* 273.7 (A.D. 46)
ἀρστ(ερῷ) (for ἀριστερῷ) *SB* 9740.13, with ἀριστερᾷ 8: *ChrEg.* 43 (1968), 173 (A.D. 177)
περπατῶ (for περιπατῶ) *BGU* 380.18 (3rd cent.)
φύλκι (for φύλακι) *OMich.* 147.5 (3rd cent.)
ταυρκά (for ταυρικά) *PFay.* 131.17 (3rd/early 4th cent.)
πέρσυ (for πέρυσι) *POxy.* 1299.8: *BL* iii, 135 (4th cent.)[3]
περσυνόν, προπερσυνόν (for περυσινόν) *PSI* 50.12 (4th/5th cent.)
περσιν[ῶν] *SB* 9596 V (A.D. 579)
cf. περσοινοῦ *PColt* 81.6 (A.D. 685 ?)

c. Loss of an unaccented vowel *before* a liquid or nasal (most frequent):

ἐπακλουθεῖν (for ἐπακολουθεῖν) *SB* 7376.34-35 (A.D. 3)

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[1] σκόρδον Crates Theb. LXX, Phld. Dsc. *Gp.* & codd. Hp. Thphr. Plu. Gal. etc. (*LSJ*, s.v. σκόρδον; Crönert, 132, n. 5), and excl. in the Ptol. papp. (Mayser i², 1, 123).

[2] Cf. also ὀρέβου above, p. 290, and ὀρύβου, etc., above, p. 293.

[3] For περσυνός, etc., see Kapsomenakis, 64-65. Transposition of υ and ι is also found, e.g., περισυνῶν *PMich.* 473.23 (early 2nd cent.); περισυνούς *SB* 9638 = *PMed.* 42.2 (6th cent.); περισυν(όν) *PRossGeorg.* iv, 3.11 (ca. A.D. 709).

ἐπηκλούθησεν *PRyl.* 126.19 abbrev. (A.D. 28/29); 128.25 (ca. A.D. 30); sim. 131.26-27 (A.D. 31); 143.18 (A.D. 38); 148.23 (A.D. 40); etc.
ἐπακλουθῆσαι *PMich.* 582 ii.22 (A.D. 49/50); 354.15 (A.D. 52)
ἐπακλοθ(ούντων) *POxy.* 2185.4 (A.D. 92); sim. *POslo* 95.14-15 (A.D. 96)
ἀκλουθήσῃ *PMich.* 312.33 (A.D. 34)
ἐξακλουθούσης *PMich.* 266.16-17 (A.D. 38)
συνακλουθῶν *PMich.* 355.11, so duplic. *PSI* 902.14-15 (1st cent.)
ἀκλούθως *PMich.* 340.115,121 (A.D. 45/46); 341.12, so duplic. *PSI* 904.13 (A.D. 47); 231.20 (A.D. 47/48); etc., freq. (see *PMich* v, Part ii, p. 13); *PSI* 901.14, sim. 23 (A.D. 46); *PHamb.* 4.12 (A.D. 87); etc.
ἀκλουθίαν *BGU* 1671.16 (2nd cent.)

ἀγρανομικῷ (for ἀγορανομικῷ) *POxy.* 836 descr. (30 B.C.-A.D. 14)
ἐγρανομίου (for ἀγορα-) *PLond.* 1168 (iii, 135-8).35 (A.D. 44: *BL* i, 282)
ἀγρανόμῳ (for ἀγορανόμῳ) *POxy.* 243 = *MChr.* 182.2-3 (A.D. 79); *POxy.* 241.2 (ca. A.D. 98)
ἠγρανομηκότων *POxy.* 2588.1-2 (A.D. 148)
ἀγρανομήσας *PMichMichael* 17.2-3 (A.D. 194)

πλείτευμα (for πολίτευμα) *SB* 7448 = *PSI* 1160.5 (1st half 1st cent: *BL* iii, 228)

παρακχρητικόν (for παραχωρητικόν) *PSI* 906.7, with παραχωρήσεως 6, sim. 8 (A.D. 45/46)

χρισμός (for χωρισμός) *PMich.* 339.3 (A.D. 46)
χρήσει (for χωρήσει) *SB* 7997 = *PSI* 1259.7 (2nd/3rd cent.)

πρά (for παρά) *StudPal.* xxii, 46.8 (1st cent.); *PMich.* 224.1450 (A.D. 172-3); sim. *PAntin.* 42.27 (A.D. 542)
πρά⟦ρ⟧σχῃς (for παράσχῃς) *PSI* 825.20 (4th/5th cent.)
πρακαλοῦσα (for παρακαλοῦσα) *SB* 9239.13-14, corr. elsewh. (A.D. 548)

Φλαδελφείας (for Φιλαδελφείας) *PMich.* 594.4 (A.D. 51)
αὐτοκράτρος (for αὐτοκράτορος) *PSI* 1133.1 (A.D. 70/73)
πρότρον (for πρότερον) *PVindobWorp* 10.12 (A.D. 143/4)
ἀπλιώτη (for ἀπηλιώτην) *SB* 9242 b.5 (2nd cent.)
κεχραγμένην (for κεχαραγμένην) *SB* 9640.10 (A.D. 152)
ἐργαστρῶν (for ἐργαστηρίων) *POxy.* 1648.33, corr. 50, etc. (late 2nd cent.)
τεσ|ράκοντα (for τεσσαράκοντα) *PTebt.* 397.30-31 (A.D. 198)
τεσρασκαιτεκάτη (for τεσσαρεσκαιδεκάτης) *StudPal.* iii, 161 = xx, 201.4 (5th/6th cent.)
κεκλισμένη (for κεκυλισμένη) *PLBat.* xvi, 30 i.9 (3rd cent.)
εἰσέβλην (for εἰσέβαλεν) *OMich.* 364.4 (late 3rd cent.)
Κρανίδος (for Καρανίδος) *PCairIsidor.* 59.43 (A.D. 318)
παρακλεῖσθε (for παρακαλεῖσθε) *PCairMasp.* 20 V.1 (6th cent.)
μεγλοπρέπιαν (for μεγαλοπρέπειαν) *POxy.* 2732.11, corr. 3,8 (6th cent. ?)
μαγρικ(όν) (for μεγαρικόν) *PGot.* 17 R. 16 (6th/7th cent.)
ὁλοσχρεῖ (for ὁλοσχερεῖ) *SB* 9769.9-10 (7th cent.)

ἀπόστλος (for ἀπόστολος) *SB* 5177.4 = *PLond.* 1431.5, with σύμβλος for σύμβουλος 8 (Arab.)

Note. Forms of ὀφείλω sometimes show a similar syncope:

ὀφλ̣ομένων (for ὀφειλομένων) *PLBat.* xvi, 1.35 (early 2nd cent.); sim. *POxy.* 1719.12-13 (A.D. 204)
ὀφλεῖν (for ὀφείλειν) *POxy.* 1973.8 (A.D. 420)

The noun ὄφλημα is also used as the equivalent of ὀφείλημα in the meaning of debt in general:

ὄφλημα *SB* 7358.6 (A.D. 277-82); *PPrinc.* 184.8 (4th/5th cent.); etc.
ὀφλήματι *PCairMasp.* 169.13 (6th cent.); 309.35 (A.D. 569)
ὀφλήματα *POxy.* 2411.52 (ca. A.D. 173); *POxy.* 1638.15 (A.D. 282); etc.

d. Syncope is very common in Latin loanwords, regular in some, especially diminutives in *-ul-*; it is also sometimes found in Latin names:[1]

τάβλα *tabula BGU* 1079 = *WChr.* 60.29 (A.D. 41); *BGU* 338.8 (2nd/3rd cent.)
τάβλ̣η[ς *BGU* 847 = *WChr.* 460.15 (A.D. 182/3)
τάβλαν *PPar.* 18 b = *WChr.* 499.5 (2nd/3rd cent.)
τάβλας *SB* 4514 (A.D. 269)
ταβλίον *PLond.* 191 (ii, 264-5).14 (A.D. 103-17); *POslo* 46.19 (3rd cent.)
τάβλιν *PLond.* 1420.4 (A.D. 706); 1421.6 (A.D. 720 ?); 1423.1 (8th cent.); *StudPal.* xx, 199.1 abbrev. (8th cent.)
ταβλία *PLond.* 964 (iii, 211-12).10-11 (late 2nd/3rd cent.); sim. *PFay.* 104.4 (late 3rd cent.)
cf. ταβλίου *SB* 7475.16, inscr. (6th/7th cent.)
λάνκλα, λίνγλα, λίνγλαι *lingula BGU* 781 v.18; vi.3,16 (1st cent.)
ῥεποστώριον *repositorium PLBat.* xiii, 6.9 (1st cent.)
δράγλαι *tragula PLond.* 191 (ii, 264-5).12 (A.D. 103-17)
κόπλας *copula PAberd.* 70.3 (2nd cent.)
ἀκίσκλων *acisculum BGU* 1028 ii.12-13,16 (2nd cent.)
σπεκλά[ρ]ια *specularium OStrassb.* 789.3-4 (prob. late 2nd/early 3rd cent.); *OTait* 1997.4 (2nd/3rd cent. ?)
σπέκλ[ων *speculum POxy.* 1921.12, sim. 13 (A.D. 621)
but σ̣πεκουλ(ίων) *PCairGoodsp.* 30 vii.31: *BL* i, 175 (A.D. 191/2)
σιγγλαρίων *singularis PRossGeorg.* iii, 1.6 (A.D. 270: *BL* iii, 156)
but σιγγουλάριος, etc., elsewhere (for examples, see above, p. 219)
στάβλῳ *stabulum POxy.* 43 V = *WChr.* 474 i.12 (A.D. 295); *POxy.* 140 = *WChr.* 438.14 (A.D. 550); etc.
στάβλου *PRyl.* 288.4 part. rest. (late 3rd cent.); *POxy.* 2115.9 (4th

[1] For οὐετρανός, *veteranus*, see above, p. 284. Many of these spellings reflect Lat. short forms. For syncope in Lat., see Leumann-Hofmann, 91-95.

cent.); *POxy.* 138 = *MChr.* 352.10, etc. (A.D. 610/11); *PMerton* 100.2 (A.D. 699); etc.
στάβλον *OOslo* 23.2 (4th cent.); *PSI* 809.3 abbrev. (4th/5th cent.); *PLond.* 1005 (iii, 260-1).8 (A.D. 598/9 ?); etc.
μαγνιφέρι (for ἰμαγινιφέρι *imaginifer*) *PBeattyPanop.* 2.297 (A.D. 300)
cf. ἠμάγνιφερ *SB* 8430.3-4, inscr. (Rom.)
τίδλων *titulus StudPal.* xx, 93.2,10,15 (4th cent.)
τίτλον *PLips.* 33 ii = *MChr.* 55.16 (A.D. 368)
τίτλων *PLips.* 62 ii = *WChr.* 188.10,13,28 (A.D. 385); *PMich.* 160. 6,15 (4th/5th cent.); *PSI* 43.4 (5th cent.); *SB* 5175.4,18 (A.D. 513); etc.
τίτλου *POxy.* 1907.7 (7th cent.)
ἀλίκλαν *alicula SB* 9834 b.10 (early 4th cent.)
μάτλαν *matula SB* 1160.6 (n.d.)
σίτλιον *situla POxy.* 1290.9 (5th cent.)
βακλίσθῆναι (*baculum*) *PCairMasp.* 5.18 (6th cent.)
βακλίσθῶ *SB* 9616 R.5 (A.D. 550-8 ?)
cf. also occasionally in Latin names:
Τεβρίου (for Τιβερίου) *POxy.* 267 = *MChr.* 281.38 (A.D. 36)
Τιβρίου *POxy.* 144 = *MChr.* 343.19 (A.D. 580)
Καίσρος (for Καίσαρος) *PSI* 1225.10 (A.D. 156)
For Νίγ(ε)ρος, Νίγ(ε)ρου, etc., see Morphology I B 1.

Note. The normal spellings Δόμνος, e.g., *POxy.* 1204.22,23,26 (A.D. 299), Δόμνα, e.g., Δόμνῃ *POxy.* 1350 descr. (5th/6th cent.), etc., reflect the Latin short forms.[1]

C. VOWEL DEVELOPMENT[2]

1. Development of a vowel, usually ι, between a consonant and another vowel.[3] This is the converse of the loss of a vowel in this position.[4]

a. After a liquid or nasal:

τεσεριάκοντα (for τεσσαράκοντα) *PSI* 1051.10, sim. 13 (A.D. 26)
ζυτηριᾶς (for ζυτηρᾶς) *OTebt.* 1.3 (1st cent.)
τετρωβώλιου (for τετρωβόλου) *POxy.* 70.9 (A.D. 212/13: *BL* i, 314)
συνηγόριων (for συνηγόρων) *PThead.* 15.2,19 (A.D. 280/1)
γύνιαιον (for γύναιον) *POxy.* 1873.7 (late 5th cent.)

[1] Leumann-Hofmann, 92; Meinersmann, 109.
[2] Schwyzer i, 278; Lejeune, § 300; Schweizer, 102; Rüsch, 150; Mayser i², 1, 124-5; Psaltes, 21-23, 43-49.
[3] Development of a vowel is found in the Att. inscrr. only in Μεταγειτονίων from the 2nd cent. A.D. (*MS*, 69); there are few clear exx. elsewh.
[4] See above, pp. 302-5.

χαριᾶς (for χαρᾶς) *POxy.* 2732.16 (6th cent. ?)
ἡμέριᾳ (for ἡμέρᾳ) *BGU* 1039.3, sim. 5,6, corr. 2,6 (Byz.)

b. In other positions:

ἐξιουσίαν (for ἐξουσίαν) *PTebt.* 409.8 (A.D. 5)
ἀβιόλλας (for ἀβόλλας) *PHamb.* 10.31 (2nd cent.)
ἐκχιεῖται (for ἐκχεῖται) *PSI* 1143.15 (A.D. 164)
ἀπετιῶν (for ἀπαιτῶν) *POxy.* 2267.12 (A.D. 360)

c. ε is sometimes inserted before a back vowel (= /i/[1]):

πᾶσεαν (for πᾶσαν) *PMich.* 329-30.8 (A.D. 40)
ποστήσεω (for ἀποστήσω) *PTebt.* 397.32 (A.D. 198)
μεταβαλεόμενος (for -βαλόμενος) *POxy.* 1470.12 (A.D. 336)
ἀλλέως (for ἄλλως[2]) *PApoll.* 41.10 (ca. A.D. 708-9)

2. Development of a vowel between two consonants (anaptyxis). This occurs more frequently than elsewhere in Greek,[3] probably because of the colloquial nature of the language of the papyri in comparison with the more formal nature of inscriptional and other literary or monumental evidence. Many words in Modern Greek have incorporated a helping vowel.[4]

δραχαμάς (for δραχμάς) *BGU* 1195.17, corr. 18 (ca. 11 B.C.); *POxy.* 2190.51 (late 1st cent.)
Αὐτοκεράτορος (for Αὐτοκράτορος) *OTaitPetr.* 260.6-7 (A.D. 41)
παρᾶσιν (for πρᾶσιν) *PMich.* 304.8 (A.D. 42 ?)
ἐξεταμήθησαν (for ἐξετμήθησαν) *POxy.* 1153.20 (1st cent.)
ἄναδρα (for ἄνδρα) *OTebt.* 1.3-4 (1st cent.)
Σοκονοπαίου (for Σοκνοπαίου) *PLond.* 281 (ii, 65-66).3 (A.D. 66)
ταίκενα (for τέκνα) *SB* 8950 = *PSI* 1320.20 (A.D. 82-96)
ἐπενεκαθέντος (for ἐπενεχθέντος) *SB* 7599.8 (A.D. 95)
πράγαματος (for πράγματος) *POxy.* 1155.6 (A.D. 104)
μέχερι (for μέχρι) *PBrem.* 26.6 (A.D. 114-16)
χαριτίνων (for χαρτίνων) *PBerlLeihg.* 9.1 part. rest., 7: *BL* iii, 29 (A.D. 240/1)
πυριγίσκῳ (for πυργίσκῳ) *POxy.* 921.24 (3rd cent.)
ὀγοδοήκοντα (for ὀγδοήκοντα) *POxy.* 1713.8 (A.D. 279)

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1 See above, pp. 261-2.
2 This spelling is also found in MGr. (ed., n. ad loc.; Kykkotis, s.v.).
3 There is no certain ex. of anaptyxis at Pergamum (Schweizer, 102) and only 1 ex. at Delphi (Rüsch, 150). Some exx. are found in Schwyzer, "Vulg.," 254; Thumb, *Hell.*, 207; Dieterich, 40-43.
4 E.g., καπινός 'smoke,' ἀκόμη (< ἀκμήν) 'yet,' 'still,' βότικα 'vodka' (Schwyzer i, 278). There is only 1 parallel ex. of anaptyxis (betw. п and р) in Gr. loanwords in the Copt. NT (Böhlig, 106), but the insertion of vowels in Copt. docc. is not rare (Kahle VIII, § 64).

κανίδια (for κνίδια) *PBeattyPanop.* 2.114 (A.D. 300)
κετισθέν (for κτισθέν) *StudPal.* viii, 804.2 (5th cent.)
μενήμ[ης (for μνήμης) *PLond.* 1766.5 (A.D. 559)
σπλάγχανων (for σπλάγχνων) *SB* 9402.6 (6th/7th cent.)
ἀμαφόδου (for ἀμφόδου) *StudPal.* iii, 431.3 (7th/8th cent.)
cf. παραχθέν (for πραχθέν) *SB* 5716.14 (A.D. 1172?)

3. Development of an initial vowel (prothesis). This is quite rare except in the word (ἐ)χθές. Elsewhere it tends to occur only before an initial σ + consonant cluster.[1]

a. The lengthened ἐχθές is the more frequent spelling, but χθές occurs from the late 3rd cent. A.D. on.[2]

ἐχθές *PLips.* 105 = *WChr.* 237.1 (1st/2nd cent.); *PGiss.* 45.7 (A.D. 117-38); *MChr.* 372 iv.20; v.4,11 (2nd cent.); *BGU* 731.6 (A.D. 180); *PFlor.* 318.11 (A.D. 212); *CPR* 20 = *StudPal.* xx, 54 i.11 (A.D. 250); *PLeit.* 10.5 (late 3rd/early 4th cent.); *PErl.* 35.1 (Byz.); *PRossGeorg.* iii, 22.10 (7th cent.); *PAntin.* 193.3 (7th cent.); etc.
χθές *PSI* 184.5 (A.D. 292); *PBeattyPanop.* 1.400 (A.D. 298); *PSI* 207.5 (3rd/4th cent.); *PStrassb.* 296 R.11 (A.D. 326); *POxy.* 901 = *MChr.* 70.5 (A.D. 336); *PFlor.* 309.1 (4th cent.); *PAmst.* 1.4 (A.D. 455); *PSI* 1309 ii.8 (5th/6th cent.); *PSI* 98.3 (6th cent.); *PApoll.* 9.1 (before A.D. 704); 13.7 (A.D. 706); etc.

b. Before σ + consonant:

ἐσχοινίου, ἐσπέρματα (for σχοινίου, σπέρματα) *PThead.* 5.5,8 & 12 (A.D. 338)
ἰσκ[ρ]ίβαις (for σκρίβας) *StudPal.* i, p. 8, iii. 3 (A.D. 456)

D. LOSS OF SYLLABLE[3]

Many examples of the loss of a syllable in the papyri are scribal errors without significance for the pronunciation of the word; others may have phonological significance.

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[1] There is 1 ex. of ἀ- prefixed before σπ- in the Ptol. papp., but it is prob. the result of confusion betw. two words (Mayser i², 1, 125). See further Thumb, *Hell.*, 144-7 (prothesis of ι before στ- = foreign influence); *Handbook*, §12; Dieterich, 33-37 (prothesis of α- freq. in MGr. began in Eg. perh. reflecting native pronunciation). See further Schwyzer i, 411-13.

[2] χθές *h.Merc.* Th. Pl. Plu.; ἐχθές S. Antipho Ar. Theoc. etc. and more common in LXX & NT (*LSJ*, s.vv.; *BDF*, §29.6). ἐχθές is used excl. in the Ptol. papp. (Mayser i, 1, 125) and is found in the mag. papp. in *PGM* 57.36 (A.D. 117-38). Cf. Lejeune, §193.

[3] Schwyzer i, 262-5; Mayser i², 1, 217-20. For τριάντα, σαράντα, etc., for class. τριάκοντα, τεσσαράκοντα, see Morphology IV A 13; for δέσκαλος, etc., see above, p. 278.

1. Haplography:

οὐδὲν καλέσωι (for ἐνκαλέσω) *CPR* 12 = *StudPal.* xx, 2.19 (A.D. 93)
μὲ (for μετὰ) ταῦτα *StudPal.* xx, 75 iii.14 (3rd/4th cent.)[1]

2. Partial haplography:

κὰ (for κατὰ) τήν *PMich.* 340.4 (A.D. 45/46); *PWürzb.* 10 = *PSarap.* 1 bis (p. 275).4 (A.D. 130); sim. *PTebt.* 397.29,31 (A.D. 198); *PHamb.* 23.30 (A.D. 569)
κὰ (for κατὰ) μῆνα *PBeattyPanop.* 2.66 (A.D. 300)
κὰ (for κατὰ) καιρόν *PMichael.* 41.47 (A.D. 539/54)
κασκευή[ν (for κατασκευήν) *PLond.* 1260.9 (*PBeattyPanop.*, App.) (late 3rd/early 4th cent.)
καλημφθεῖσαν (for καταλημφθεῖσαν) *PCornell* 20.150, corr. elsewh. (A.D. 302)
καβουλῇ (for καταβολῇ) *PMichael.* 45.74 (A.D. 540)
ἠγόρα (for ἠγόρακα) ἥν *PLond.* 853 a = *PSarap.* 98.12 (early 2nd cent.)
ἐρῶ (for ἐρωτῶ) οὖν *PAmh.* 134 = *PSarap.* 94.9 (early 2nd cent.)
πονηρ[ο]τοις (for πονηροτάτοις) *PLBat.* vi, 15.63 (ca. A.D. 114)
ἐπι⟦φαν⟧|φανεστων (for -τάτων) *POxy.* 43 R iii.17-18 (A.D. 295)
εὐκενεστη (for εὐγενεστάτη) *PSI* 836.1, corr. 2,6 (6th cent.)
μισασθαι (for μισθώσασθαι) *BGU* 2126 ii.6 (1st half 3rd cent.)
καὶ βαι(α) (for βέβαια) *POxy.* 1126.18 (5th cent.)

3. Visual analogy:

δεύρου (for δευτέρου) *StudPal.* xxii, 46.7 (1st cent.)
cf. the converse δεύτερο (for δεῦρο) *PSI* 1428.9 (6th cent.)

4. Possible phonological significance:[2]

χρόν (for χρόνον) *SB* 7619 = *PRein.* 103.8 (A.D. 26); *PMich.* 312.30 (A.D. 34); *PGen.* 34.7: *BL* i, 162 (A.D. 157); *PLond.* 1638.7 (A.D. 523)
χρῶν (for χρόνον) *PMich.* 304.9, sim. 3 (A.D. 42?); *SB* 8950 = *PSI* 1320.18 (A.D. 82-96)
χροῦ (for χρόνου) *POxy.* 1641.9, with χρόνον 8 (A.D. 68)
cf. the converse χρόνονον *SB* 9219.11, corr. 17, with ἀντίγραφονον 8 (A.D. 319)

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[1] Although μέ is the MGr. descendant of the class. μετά, it is not found sufficiently freq. in the papp. to consider this spelling an anticipation of the MGr. form.

[2] Even where orthographic factors are involved in the loss of a syll., phonological dissimilation often takes place, so that the resultant spelling indicates that the articulation of the cons. of the 1st syll. goes directly to the vowel of the 2nd (Schwyzer i, 262).

E. METATHESIS[1]

Metathesis is limited to a very few words, indicating the existence of by-forms rather than that metathesis was a phonological feature of the living language.

1. πορθμεῖον and derivatives fluctuate between the classical πορθ- spelling and the later προθ-, which is more common in the papyri:

προθμίου *OTaitPetr.* 112.4 (A.D. 111); 113.2 (A.D. 186); *PStrassb.* 299 V.14,19, sim. 15: *BL* v, 141 (2nd cent.); *PLips.* 32 = *MChr.* 93 ii.2 (ca. A.D. 250); *PJand.* 150 ii.12 (prob. 3rd cent.); *PSI* 1082. 5,16 (4th cent. ?); *POxy.* 1917.110 (6th cent.)
προθμείου *PRyl.* 594.4 abbrev. (mid 2nd cent.); *WChr.* 392. i.10 (2nd cent.); *BGU* 1894.55 (A.D. 157); *PCol.* 1 V 1a.23 (ca. A.D. 160)
π]ροθμῖον *POxy.* 1421.6 (3rd cent.)
προθμεῖον *POxy.* 118.6 (late 3rd cent.)
προθμεῖ *PLond.* 131 R (i, 166-88).218 (A.D. 78/79)
προθμεῦσι *PAmh.* 110.16 (A.D. 75)
προθμάριν *SB* 9653 = *PMilVogl.* 188.29 (A.D. 127 ?)
προθμαρίου *SB* 7997 = *PSI* 1259.4-5 (2nd/3rd cent.); *POxy.* 2273.18-19: *BL* iv, 64 (late 3rd cent.); *POxy.* 2421.8 (early 4th cent.)
προθμίδων *POxy.* 732.2, with προθμείου 4-5 (A.D. 150)
προθ(μοφυλακίας ?) *PRyl.* 193.16, etc. (A.D. 132-5)
cf. ποθιμαρίοις *PMerton* 42.4 (5th cent.)
πορθμέως *BGU* 1188.11 w. πορθμῆον 9 (15/14 B.C.+)
πορθμεύσ(αντι) *PFlor.* 387.33 (A.D. 108)
πορθμεῖον *POxy.* 2784.7 (3rd cent.)
πορθμείου *POxy.* 2195.73 abbrev., sim. 142, with πορθμαρ(ίου) also 73 (6th cent.)
Πορθμίο(υ) *PCairMasp.* 328 ix.11 (A.D. 521); *PLond.* 1420.206 part. rest. (A.D. 706)
πορθμίῳ *POxy.* 1885.9 (A.D. 509)
πορθ(μείων) *PLond.* 1458.12 (prob. 8th cent.)
πορθμαρίῳ *PSI* 808.2 (3rd cent. ?)

2. Κροκόδιλος is written Κορκ- exclusively in the papyri of the Roman and Byzantine periods:[2]

Κορκοδείλου *BGU* 1669.1 (late Ptol./early Rom.)
κορκοδίλ(ων) *BGU* 734 ii.7,33: *BL* i, 63 (3rd cent.)
κορκοτίλων *StudPal.* xx, 75 ii.16 (3rd/4th cent.)
cf. κορκόδυλλος *SB* 9125.5, amulet (n.d.)

[1] Schwyzer i, 267; *MS*, 80; Mayser i², 1, 162-3; Crönert, 81-82.
[2] κορκ- occurs 6 times in the Ptol. papp. (Mayser i², 1, 162-3). *Corcodilos* is found in Lat., but could have been a transfer of the Gr. form (Schwyzer i, 267).

3. Other words show metathesis only sporadically, probably through scribal inversion of letters:

ἐνκλαέσειν (for ἐγκαλέσειν) *PMich.* 262.28 (A.D. 35/36)
ὑδαργωγός (for ὑδραγωγός) *PMich.* 273.3,4,5; so duplic. *PSI* 906.4,5 (A.D. 45/46)
φιλοστρονγίαν (for φιλοστοργίαν) *PMich.* 341.9 (A.D. 47)
γύλμματι (for γλύμματι) *SB* 9377 = *PMilVogl.* 84.23 (5th hand), corr. elsewh. (A.D. 138)
ὑγινέων (for ὑγιαίνων) *SB* 7357 = *PMich.* 206.17 (2nd cent.)
θέρματα (for θρέμματα) *BGU* 478.15; 479.7: *BL* i, 48 (same hand) (A.D. 153)
γρεδικῶν (for γερδικῶν) *PGen.* 71.11 (3rd cent.: *BL* i, 166)
χρότου (for χόρτου) *OMich.* 234.5, corr. 2 (A.D. 274/9)
γυλκύτατ[ον] (for γλυκύτατον) *PHermRees* 46.4 (4th cent.)
γάρματα (for γράμματα) *PLond.* 1687.20 (A.D. 523)
πάρσει (for πράσει) *PMichael.* 45.74 (A.D. 540)
καρτούμενος (for κρατούμενος) *PCairMasp.* 4.7 (ca. A.D. 552: *BL* i, 100)
περβύτερως, πωρκίμενος, πώρκιτε (for πρεσβύτερος, προκ-) *SB* 4753.13,14 (Byz.)

F. ELISION AND HIATUS[1]

1. Normal elision.

Elision does not occur regularly in the papyri of the Roman and Byzantine periods.[2] Prepositions and some particles are usually elided, but frequent exceptions occur. Nominal and verbal forms are sometimes elided, but the full spelling is usual. This reflects an orthographic tendency to isolate individual words in writing[3] and does not necessarily correspond to actual speech.

a. Prepositions frequently retain their full form before a vowel:

ἀντὶ αὐτοῦ *PMich.* 504.2 (2nd cent.)
  ἀντὶ ἴσης *POxy.* 1627.15 (A.D. 342)
ἀπὸ ἐπικαλάμου *POxy.* 499.10 (A.D. 121)

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[1] Schwyzer i, 395-404; Lejeune, § 205, 207, 331-40; *MS*, 69-70; Schweizer, 134-5; Nachmanson, 71-73; Hauser, 53-54; Rüsch, 147, 174-82; Mayser i², 1, 132-6; *BDF*, § 17; Psaltes, 8-9, 21, 31-32, 64-65.

[2] Normal elision is indicated inconsistently in the Att. inscrr. from the 5th cent. B.C. on; strong elision appears only sporadically exc. in poetry. In poet. inscrr., elision is sts. om. even when demanded by meter (*MS*, 69-70). At Pergamum, elision is indicated in writing generally more freq. in the royal period than during the Rom., exc. in private inscrr. (Schweizer, 134-5). At Magnesia, elision is commonly indicated, but in poet. inscrr. *scriptio plena* is sts. found where the meter demands elision (Nachmanson, 71-73 w. lit.). Elision is likewise irregular at Delphi (Rüsch, 174-82) and in the Ptol. papp. (Mayser i², 1, 132-5).

[3] See Assimilation above, pp. 165-77.

ἀπὸ ἀμφόδο(υ) *BGU* 133.5 (A.D. 144/5); sim. *PFay.* 27.27,31 (A.D. 151/2); *PFay.* 93 = *WChr.* 317.4 (A.D. 161); *PMich.* 542.14 (3rd cent.); *StudPal.* iii, 115 = *SB* 5690.2 (Byz.); etc.

ἀπὸ ἀντιγράφου *PMich.* 428.12, sim. 17 (A.D. 154)

ἀπὸ ὥρας *POxy.* 523.4; 524.4 (2nd cent.)

ἐπὶ ἔτη δύο *PSI* 1030.7 (A.D. 109)

ἐπὶ ὄνῳ *BGU* 2105.3 (A.D. 114); *BGU* 2104.3 (2nd cent.); *BGU* 767.3; 768.4 (2nd cent.); 765.3 (A.D. 166 ?); 763.3-4 (3rd cent.); etc.

ἐπὶ ὄνοις *PFay.* 69.3; 71.3; 73.3 (2nd/3rd cent.); etc.

ἐπὶ ὑποθήκῃ *POxy.* 1701.15 (3rd cent.)

ἐπὶ ἕτερον, ἐπὶ ἄλλον *POxy.* 2586.24;25-26,27 (A.D. 253)

ἐπὶ ἐνιαυτόν *PGrenf.* i, 58.5 (ca. A.D. 561); *SB* 4490.14 (7th cent.); *BGU* 310.11 (Arab.: *BL* i, 37)

ἐπὶ ἕνα *POxy.* 140 = *WChr.* 438.9 (A.D. 550); *POxy.* 136 = *WChr.* 383.13 (A.D. 583); *POxy.* 138.13 (A.D. 610/11)

κατὰ ἄλλο *BGU* 243 = *MChr.* 216.4 (A.D. 186)

κατὰ ὄν[ομ]α *PMich.* 519.7 (4th cent.)

μετὰ ὑβρέων *PLond.* 358 = *MChr.* 52.8 (ca. A.D. 150)

μετὰ ἀσφαλείας *POxy.* 2182.15 (A.D. 166)

μετὰ οὗ *BGU* 380.18 (3rd cent.)

μετὰ ἀνθρώπων *SB* 7247 = *PMich.* 214.28 (A.D. 296)

μετὰ ἑκατόν *PJand.* 97.22 (mid 3rd cent.)

μετὰ ὀλίγας ἡμέρας *SB* 8092.21-22 (ca. A.D. 500)

μετὰ ἑνός *PJand.* 20.10 (6th/7th cent.)

παρὰ Ἀπολλωνίας *PMich.* 314.1-2 (1st cent.)

παρὰ ἑτέρων *SB* 4416.17 (ca. A.D. 157)

παρὰ αὐτῷ *PStrassb.* 131 = *SB* 8013.12 (A.D. 363)

ὑπὸ αὐτῆς *PTebt.* 397 = *MChr.* 321.4 (A.D. 198)

ὑπὸ αὐτήν *POxy.* 1634.1 (A.D. 222)

ὑπὸ ἀσφάλειαν *POxy.* 1883.8 (A.D. 504)

cf. ὑπὲ ἐμοῦ *PGen.* 47 = *PAbinn.* 47.14-15; *PLond.* 242 = *PAbinn.* 48.16; *PLond.* 403 = *PAbinn.* 49.19-20 (A.D. 346)

ἅμα ἄλλοι[ς *POxy.* 2187.21 (A.D. 304)

b. Particles sometimes retain their full form:

ἵνα ἰδῇς (for εἰδῇς) *SB* 7357 = *PMich.* 206.13 (2nd cent.); sim. *PSI* 971.9 (3rd/4th cent.); etc.

ἀλλὰ οἶδα *SB* 7249 = *PMich.* 217.7, sim. 15 (A.D. 296); etc.

Note. ἔστ᾽ ἄν is regular; the full form ἔστε does not occur:

ἔστ᾽ ἄν *POxy.* 1488.22 (2nd cent.); *PLBat.* xvii, 16 b.3 (2nd/3rd cent.); *POxy.* 1662.21 (A.D. 246); *POxy.* 1070.45 (3rd cent.); *OTheb.* 133.6 (prob. 3rd cent.: *BL* ii, 1, 41); *PSI* 162.15 (A.D. 286); *PSI* 1037.25 (A.D. 301); *POxy.* 120 R.15 (4th cent.); etc.

c. Some other particles, normally written fully, are sometimes elided:

ὥστ' εἶναι *CPR* 11.18 (A.D. 108)
οἷον τ' ἐστίν *PRossGeorg*. ii, 43.15 (2nd/3rd cent.)
ὁ πατήρ μου κ' ἡ μήτερ *PCairIsidor*. 132.20-21 (3rd cent.); sim. *OMich*. 329.6: *TAPA* 71 (1940), 648-9 (late 3rd cent.); *SB* 4254 = *OMeyer* 64.3: *TAPA* 78 (1947), 111 (3rd cent.)
μ' (for μὴ) εἰδότος *PBerlLeihg*. 21.20 (A.D. 309); *PSI* 935.8 (5th/6th cent.)
μ' εἰδώτων *PAlex.inv*. 536 (p. 26).10 (not μὲ ἰδώτων with *BL* v, 5) (n.d.); cf. μὴ 'δέναι below, p. 320

d. Nominal forms are sometimes elided:

κυρί' (for κυρία) ἔστω *PMich*. 331.5 (A.D. 41)
σ' 'Ιρήνη (for σε Εἰρήνη) *PGissBibl*. 19.11 (A.D. 55)
γράφω σ' (for σοι) ἵνα *SB* 7992 = *PSI* 1332.19 (2nd/3rd cent.)
σ' εὔχομαι *PFlor*. 118.7-8 (A.D. 254); 132.14 (A.D. 257); *PRein*. 54 = *PFlor*. 227.10 (A.D. 257); *PFlor*. 230.23 (3rd cent.); 272.8: *BL* i, 155 (A.D. 258); 273.23 (A.D. 260); etc.
τὰ τέκν' αὐτοῦ *SB* 7356 = *PMich*. 203.29, in full 30 (A.D. 98-117)
ἡ ὅσ' ἐὰν ὦ[σιν *PThead*. 5.4 (A.D. 338)

Note. τοῦτ' ἔστιν is the regular spelling in the papyri:

τοῦτ' ἔστιν *PLBat*. xvi, 33.19 (A.D. 147 ?); *BGU* 2012.21 (mid 2nd cent.); *POxy*. 237 viii.14 (A.D. 186); 1413.14 (A.D. 270-5); 2106.8 (early 4th cent.); 1424.6 (ca. A.D. 318); *SB* 9510 = *PMed*. 66.3 (A.D. 343); *PGen*. 11 = *PAbinn*. 62.8 (A.D. 350); *POxy*. 1870.9 (5th cent.); etc.

e. Verb forms are sometimes elided:

γέγον' ἴ̈ς (for γέγονεν εἴς) με *PMich*. 252.10 (A.D. 26/27); 339.8 (A.D. 46); *PSI* 915.14 (1st cent.); sim. *PMich*. 563.34 (A.D. 128/9)
cf. γέγονε εἴς με *PSI* 908.12 (A.D. 42/43)
οἶδ' (for οἶδα) [ὅ]τι *PHeid*. 223 a = *PSarap*. 91.3 (ca. A.D. 108); sim. *PLeit*. 7.10 (prob. A.D. 219-24); *PLBat*. xiii, 8.7 (A.D. 421); etc.
δύνεσθ' ἄν (for δύναισθε opt. ?) *BGU* 74.6 (A.D. 167)
εἰδέν' (for εἰδέναι) αὐτόν *PMich*. 346 a.13 (A.D. 13)
καθιστάν' (for -ιστάναι) ἵνα *PBeattyPanop*. 2.95 (A.D. 300)

Note. The negative οὐ is sometimes written before a vowel without the addition of the euphonic κ/χ:

οὐ ἀλλασόμεθα *SB* 9017 (18).5-6 (1st/2nd cent.)
οὐ ἔχουσι *PFay*. 117.9-10 (A.D. 108)
οὐ οὕτως *POxy*. 1482.4-5 (2nd cent.)

οὐ εὖδον (for οὐχ εὗρον!) *POxy.* 2986.3 (2nd/3rd cent.)
οὐ ἔσυτο (for ἔσσυτο) *PLBat.* xiii, 19.6 (3rd cent.)
cf. the converse false addition of κ in οὐκ δανίζεται *PLBat.* xvi, 1.16, w. ọụḳ ἐδανίσατο̣ 11, sim. 24 (early 2nd cent.)

2. False elision, including apocope.

The prevocalic form of some prepositions and particles is sometimes used before a word beginning with a consonant and περί appears as περ':

δι' (for διὰ) τοῦ *PMich.* 276.17 (A.D. 47)
δι' Σώτου *SB* 9451 = *PSI* 1412.10, with διὰ τόν 8, etc. (2nd/3rd cent.)
cf. ἐπ' Γαΐου *SB* 7256.3, inscr. (A.D. 23)
παρ' (for παρὰ) ταύτης *BGU* 1051.10 (30 B.C.-A.D. 14)
παρ' σοῦ *SB* 9357.6 (A.D. 198)
περ' (for περὶ) ἐνγράπτου *PMed.* 7.41 (A.D. 38)
περ' ἐπικρίσεως *POxy.* 478 = *WChr.* 218.9,10 (A.D. 132)
περ' Καρανίδα *PLond.* 151 (ii, 215-16).4 (2nd cent.)
περ' Φιλαδελφίαν *BGU* 1575.15 (A.D. 189/90)
ἵν' (for ἵνα) παράσχῃ *PLBat.* xvi, 35.25-26 (A.D. 144)
ἵν' δυνηθῶ *PFouad* 26.26,55 (A.D. 157-9)
ἵν' κἀγώ *POxy.* 1589.12 (early 4th cent.)
ἵν' μή *PMich* 518.14 (1st half 4th cent.)
ἀλλ' (for ἀλλὰ) καί *PLond.* 1339.5 (A.D. 709)

3. Double elision is sometimes found in the preposition διά:

δ' (for δι') ἐπιστολῆς *PIFAO* ii, 37.8 (2nd cent.)
δ' εἰκονισμοῦ *BGU* 1638 A.5,8 (2nd cent.)
δ' ἱερᾶς *PSI* 1444.4 (3rd cent.)
δ' ἐ̣ξαμήν̣ο̣ụ *SB* 8086.17-18 (A.D. 268)
δ' ἐμοῦ *POxy.* 1998.8 (6th cent.)

4. Hiatus in composition is sometimes found. These instances likewise reflect the orthographic tendency to isolate words and word elements.

a. In prepositional compounds:

μεταεπιγραφήν *PMich.* 252.1, so duplic. *PSI* 905.2 (A.D. 26/27); *PMich.* 303.2, sim. 7 (1st cent.); cf. μεταιεπιγραφήν *PMich.* 273.2, sim. 5, so duplic. *PSI* 906.2, sim. 6 (A.D. 45/46)
ἐπιονειδίζ[ο]μαι *PJand.* 97.4, with μετὰ ἑκατόν 22 (mid 3rd cent.)
παραέξασθαι (for παρέξεσθαι) *PHamb.* 62 = *PLBat.* vi, 23.14 (A.D. 123)
παραειλ(ήφαμεν) *PRyl.* 189.2 (A.D. 128)
παραελάβαμεν *SB* 5126 = *StudPal.* xx, 70.30 (A.D. 261)

διαανα̣γνούς *SB* 8261 = *PStrassb.* 146.11 (A.D. 154-8)
ἀναεύρω *SB* 9616 V.28 (A.D. 550-8 ?)

b. In other compounds:

Εἰκοσιπεντεαρούρου *PHamb.* 62 = *PLBat.* vi, 23.3, sim. 24-25 (A.D. 123)
μισθοαποχήν *POxy.* 2584.18, sim. 22,27 (A.D. 211)
 μισθωαποχήν *PHarris* 82.3, sim. 32 (A.D. 345)
χορτοάχυρον (for χορταχύρου) *POxy.* 1862.25 (7th cent.)
ἀρχιιερέως *PLond.* 1912.4, sim. 48 (A.D. 41); *POxy.* 1434.10 (A.D. 107/8)
 cf. ἀρχιιερέα *SB* 8267.9, sim. 12,15, corr. 21, inscr. (5 B.C.)
 ἀρχιιερατεύσαντος *PSI* 769.20 (4th cent. ?); sim. *PPrinc.* 149.3 (A.D. 176-80)
ἀρχιϊατροῦ *PCairMasp.* 151-2.6, sim. 21,110 (A.D. 570); *POxy.* 126 = *WChr.* 180.23 (A.D. 572); *PLond.* 1032 (iii, 283).3 (6th/7th cent.)

5. Inverse elision (aphaeresis).

This occurs frequently, suggesting that both types of elision were in actual use and that if the representation of either in writing reflected the patterns of the spoken language only partially, elision in one form or another must have been quite regular and hiatus rare.[1]

a. Aphaeresis of ἐ-:

τὰ ’πιγεγραμμένα (for ἐπιγεγραμμένα) *POxy.* 1453.27 (30/29 B.C.)
ἐν ’Αλεξανδρέᾳ ’σμέν (for -δρείᾳ ἐσμέν) *POxy.* 744.3-4 (1 B.C.)
 κυρία ’στωι (for ἔστω) *PMich.* 243.12 (A.D. 14-37); sim. *PMich.* 276.33 (A.D. 47)
 ὅ̣ ’στιν (for ἐστιν) *PMich.* 123 R VII.36 (A.D. 45-47); sim. *POxy.* 1155.13 (A.D. 104)
 cf. κεκληρωμένοι ’σιν (for εἰσίν) *PMich.* 326.14,46 (A.D. 48)
καὶ ’γώ (for ἐγώ) *POxy.* 294.13 (A.D. 22); sim. *PMich.* 322 a.40 (A.D. 46); *PMich.* 475.5 (early 2nd cent.); *POxy.* 486 = *MChr.* 59.9, with κἀγώ 35 (same hand) (A.D. 131); *POslo* 153.9 (early 2nd cent.); *BGU* 794.4 (2nd cent.); 632.4,11 (2nd cent.); *SB* 7353 = *PMich.* 491.13, with κἀγώ 3 (2nd cent.); *PTebt.* 412.4 (late 2nd cent.); *PSI* 1440.7 (2nd/3rd cent.); *SB* 8027.3 (2nd/3rd cent.); *PLBat.* xiii, 19.2 (3rd cent.); etc.
καὶ ’πάνακον (for ἐπάναγκον) *PPrinc.* 142.8 (ca. A.D. 23)
 καὶ ’φ’ (for ἐφ’) οἷς *PRyl.* 162.27 (A.D. 159)
 καὶ ’ποίσω (for ἐποίσω) *CPR* 39 = *WChr.* 377.19 (A.D. 266)
 καὶ ’περωτιθίς (for ἐπερωτηθείς) *POxy.* 2951.30 (A.D. 267); sim.

[1] Aphaeresis is a phenomenon of popular speech, found rarely in class. Gr. It is extremely freq. in MGr. (Lejeune, § 205; Thumb, *Handbook*, § 13; Mirambel, *Gram.*, 27). Aphaeresis is moderately freq. in the Ptol. papp. (Mayser i², 1, 135-6), but not common elsewh. in the Koine (1 ex. at Delphi: Rüsch, 147).

PFlor. 54.18: *BL* i, 140 (A.D. 314); *POxy*. 84 = *WChr*. 197.24-25 (A.D. 316); *PLond*. 1732.9 (A.D. 586 ?)

μὴ 'πελεύσεσθαι (for ἐπελεύσεσθαι) *PMich*. 283-4.13, corr. 7 (1st cent.); sim. *PSI* 915.12 (1st cent.)

μὴ 'ἄσιν (for ἐάσειν) *PFouad* 19.10 (A.D. 53)

μὴ 'ψεῦσθαι (for ἐψεῦσθαι) *POxy*. 2855 A.18 (A.D. 291)

ἢ 'πέλθῃ (for ἐπέλθῃ) *PMich*. 354.25 (A.D. 52)

ἐξ ὅτου 'νκλεῖ (for ἐγκαλεῖ) *SB* 9121.5 (1st cent.)

τῇ 'μῇ (for ἐμῇ) *POxy*. 975 descr. (1st/2nd cent.)

τῇ 'κάστῃ (for ἑκάστῃ) *PRossGeorg*. iii, 1.17 (A.D. 270: *BL* iii, 156)

καὶ 'νοίκησιν (for ἐνοίκησιν) *POxy*. 75.32 (A.D. 129)

παρὰ 'μαυτῷ (for ἐμαυτῷ) *BGU* 769.5 (A.D. 172); 637 = *MChr*. 336.2 (A.D. 212/13)

τοῦ 'πιτρόπου (for ἐπιτρόπου) *PMerton* 26.13, corr. 11,15,16 (A.D. 274)

ὁ 'περχόμενος (for ἐπερχόμενος) *PStrassb*. 518.22 (ca. A.D. 300)

τὸ 'πιστολίδιον (for ἐπιστολίδιον) *PHarris* 110.4 (4th cent.)

τὸ 'πίσταλμ[α] *PCairMasp*. 48.7 (Byz.)

ἐπὶ 'νοχλοῦμαι (for ἐπεὶ ἐνοχλοῦμαι) *StudPal*. xx, 75 iii.9 (3rd/4th cent.)

ἀλλὰ 'ναντία (for ἐναντία) *BGU* 1024 v.16 (late 4th cent.: *BL* i, 88)

cf. ταδαναντία *PSI* 901.15 (1st hand), with τὰ ἀναντία 24 (2nd hand) (A.D. 46)

ἐφανίσθη 'νεκεν (for ἕνεκεν) *POxy*. 1834.3 (late 5th/early 6th cent.)

cf. ὡς 'τῶν (for ἐτῶν) *PHamb*. 30.3,5,6,7 (A.D. 89)

λαμβάνιν 'ξουσίαν (for ἐξουσίαν) *PBouriant* 20 = *PAbinn*. 63.15 (A.D. 350)

b. Aphaeresis of εἰ-:

μὴ 'δέναι (for εἰδέναι) *PSI* 908.13,25 (A.D. 42/43); *BGU* 1037.39 (A.D. 48: *BL* i, 90); *PMich*. 306.18 (1st cent.); *PMich*. 296.7 (1st cent.); *SB* 8950 = *PSI* 1320.22 (A.D. 82-96); *CPR* 217.5 (2nd cent.); sim. *PMich*. 322 a.48 (A.D. 46)

cf. ἵν' 'δέναι *POxy*. 1830.16 (6th cent.)

μὴ 'δότων *StudPal*. xxii, 40.36 (A.D. 150); *PLBat*. v, ii.29 (A.D. 174)

c. Aphaeresis of ἀ-:

καὶ 'διαιραίτου (for ἀδιαιρέτου) *PMich*. 249.2 (A.D. 18); sim. *PMich*. 257.3 (A.D. 30); *PSI* 918.3 (A.D. 38/39) ;*PMich*. 269-71.2,14, so duplic. *PSI* 907.2,9 (A.D. 42); *PSI* 908.4 (A.D. 42/43); *PMich*. 280.3; 282.4; so duplic. *PSI* 917.5; *PMich*. 290.6-7; 297.2,4; 298.6-7; so duplic. *PSI* 913.6; *PMich*. 299.3; cf. *PMich* v, part ii, p. 13 (all 1st cent.); *POxy*. 1105.13 (A.D. 81-96)

ἀπὸ 'γρώστεως (for ἀγρώστεως) *PMilVogl*. 187.10 (2nd cent.)

χει(ρὶ) 'ριστ(ερᾷ) (for ἀριστερᾷ) *PMilVogl*. 68.6 (A.D. 154)

καὶ ᾽ξιῶ (for ἀξιῶ) *PFouad* 26.50 (A.D. 157-9)
ὁ ᾽νήρ (for ἀνήρ) *PTebt.* 396.5 (A.D. 188)
τὰ ᾽δικήματα (for ἀδικήματα) *PSI* 927.28 (late 2nd cent.)
Παῦνι ᾽σφαλῶ[ς] (for ἀσφαλῶς) *CPR* 45 = *StudPal.* xx, 21.20-21 (A.D. 214)
τὰ ᾽σφαλίσματα *PMerton* 32.8 (early 4th cent.)
καὶ ᾽πίωνα (for ᾽Απίωνα) *POxy.* 80 = *WChr.* 473.20 (A.D. 238-44)
ἑπτὰ ᾽πό (for ἀπό) *PMed.* 47.7 (3rd cent.)
ὁ ᾽δελφός *POxy.* 1299.4, sim. 11 (4th cent.)
τοῦ ᾽νικήτου *PLond.* 1675.3 (A.D. 566-73)

d. Aphaeresis of other initial vowels:

οὐλ(ὴ) ᾽φρύει (for ὀφρύι) *PMich.* 321 marg.1 (A.D. 42)
καὶ ᾽κύα (for οἰκία) *PMich.* 329-30.3 (A.D. 40)
ἡ ᾽διόγραφος (for ἰδιόγραφος) *POxy.* 1199.18 (3rd cent.)
οἱ ᾽δροφύλακες (for ὑδροφύλακες) *PThead.* 14.25 (4th cent.)

G. CRASIS[1]

Crasis is generally restricted to a few familiar combinations, as elsewhere in the Koine.[2] The following forms occur.

1. Combinations of καί + a pronoun or particle:

κἀγώ *PMich.* 476.19; 479.15; 481.14 part. rest. (early 2nd cent.); *PMilVogl.* 60.10; *PMich.* 489.10 (2nd cent.); *POxy.* 33 = *WChr.* 20 i.4-5 (late 2nd cent.); *PMich.* 209.10-11 (late 2nd/early 3rd cent.); *PSI* 1248.14,23 (A.D. 235); *BGU* 8 iii.6 (ca. A.D. 248); *SB* 7251 = *PMich.* 219.17 (A.D. 296); *PSI* 944.8,12 (A.D. 364/6?); *POxy.* 130.7 (6th cent.); *BGU* 725.8 (A.D. 618); *PApoll.* 42.6 (A.D. 703-15); etc.
κἀμοῦ *BGU* 1208.37 (27/26 B.C.); *PWürzb.* 9.11 (A.D. 161-9); *PLBat.* xvi, 29 ii.17 (3rd cent.); *BGU* 1093.12 (A.D. 265); *SB* 5356.10 (A.D. 311?); *PHermRees* 8.10 (4th cent.)
κἀμοί *PMich.* 174.11 (A.D. 145-7); *BGU* 300 = *MChr.* 345.8 (A.D. 148); *POxy.* 928.12 (2nd/3rd cent.); *PLond.* 951 V = *WChr.* 483.1 (3rd cent.);

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[1] Schwyzer i, 401-3; Lejeune, § 343-50; *MS*, 70-73; Schweizer, 133; Nachmanson, 74; Hauser, 54; Rüsch, 173, Mayser i², 1, 136-9; *BDF*, § 18.

[2] Crasis occurs freq. in class. Att. lit. (Schwyzer i, 402). In the Att. inscrr., it occurs in general the more freq. the less official the inscr., so that while rarely found in decrees, it is most freq. and almost consistent in 6th and 5th cent. dedicatory inscrr. and vases; in the Roman period, isolated writing is preferred (*MS*, 70-73). At Pergamum, crasis is found only in inscrr. of the royal chancery (Schweizer, 133). At Magnesia, it is found once in καλοὺς κἀγαθούς and w. the art. or καί in foreign inscrr. (Nachmanson, 74). In the Ptol. papp., crasis is found only in stereotyped phrases; no new forms occur (Mayser i², 1, 136-9). See further *BDF*, § 18; Kapsomenakis, 72-73. MGr. retains crasis in κἄν; other apparent exx. of crasis are better considered contraction or aphaeresis (Mirambel, *Langue grecque*, 30).

POxy. 1577.7 (3rd cent.); 1642.6 (A.D. 289); 1643.10 (A.D. 298); *PLond.* 408 = *PAbinn.* 18.17 (ca. A.D. 346); *SB* 4481.15 (A.D. 486); *PMon.* 6.58 (A.D. 583); etc.

κἀμέ *POxy.* 532.13 (2nd cent.); *WChr.* 217.18 (A.D. 172/3); *POxy.* 2760.18 (ca. A.D. 179/80); *PMich.* 213.22 (3rd cent.); *POxy.* 2894 ii.22; iii.20 (A.D. 270); 2900.19 (late 3rd cent.); 1771.11 (late 3rd/early 4th cent.); 904.2 (5th cent.); etc.

κἄν *PMich.* 128 ii.37 (A.D. 46-47); 477.38 (early 2nd cent.); *BGU* 136 = *MChr.* 86.25 (A.D. 135); *BGU* 300 = *MChr.* 345.5 (A.D. 148); *PPrinc.* 164.3 (2nd cent.); *PLBat.* xvii, 14.28 (2nd cent.); *PLeit.* 5.16 (ca. A.D. 180); *PAchmim* 8.16 (A.D. 197); *PCairIsidor.* 133.8 (late 3rd cent.); *PSI* 1161.17 (4th cent.); *PCairMasp.* 26.19 (ca. A.D. 551); etc.

καὐτός *SB* 10573.13 (10/9 B.C.); *POslo* 47.6 (A.D. 1); *PMich.* 174.3 (A.D. 145-7); *POxy.* 1675.13 (3rd cent.); *PCairMasp.* 151-2.255 (A.D. 570)

καὐτόν *PBrem.* 5.8, sim. 11 (A.D. 117-19); *PLond.* 1356 = *WChr.* 254.17 (A.D. 710); cf. *PMich.* 348.22-23, with καὶ αὐτόν corr. from καὐτόν (A.D. 27)

καὐτῇ *PGen.* 53 = *PAbinn.* 36.13 (ca. A.D. 346)

καὐτοί *POxy.* 2190.23 (late 1st cent.); *PBrem.* 37.15 (ca. A.D. 117)

καὐτῶν *PLond.* 1393 = *SB* 7241.22 (A.D. 697/712); *PLond.* 1384.22 (A.D. 710?); sim. *PLond.* 1356 = *WChr.* 254.17 (A.D. 710)

κἀκεῖνος *PBrem.* 53.28 (A.D. 114); *PSI* 1100.13 (A.D. 161)

κἀκείνης *POxy.* 68 = *MChr.* 228.18 (A.D. 131)

κἀκείνοις *POxy.* 474.38 (A.D. 184?)

κἀκείνων, κἀκεῖνοι, κ̣ἀκεῖνα, κἀκείνους *PBeattyPanop.* 2.54,70,226, 227, etc. (A.D. 300)

κἀκείνων *PLond.* 410 = *PAbinn.* 33.10 (ca. A.D. 346)

κἀκείνους *PCairMasp.* 151-2.271 (A.D. 570); *POxy.* 1854.3 (6th/7th cent.)

κἀκείνῳ *PCairMasp.* 295 iii.16 (6th cent.)

κἀκείνου *PMon.* 11.37 (A.D. 586)

κἀκεῖ *PGiss.* 9.11 (ca. A.D. 117)

κἀκῖθεν (for κἀκεῖθεν) *PMich.* 486.15 (2nd cent.)

κἀκεῖσε *PCairMasp.* 87.7 (A.D. 543)

κἀνταῦθα *PCairMasp.* 31.4 (ca. A.D. 547)

κἀντεῦθεν *PMon.* 6.27, with κἀκεῖνον 30, κἀκεῖνα 35 (A.D. 583)

κ̣ο̣ὐκ *POxy.* 2339.17 (1st cent.); *PMerton* 28.18 part. rest. (late 3rd cent.)

κοὐ *PMich.* 575.5 (A.D. 184?)

κοὐδεμίαν *SB* 6263.7 (Rom.)

κᾆτα *PLond.* 1902 V descr. (A.D. 566-73)

2. Combinations of the article and other words:[1]

οὗμος *PLond.* 1912.6 (A.D. 41); *PRyl.* 654.6 (before A.D. 336: *BL* iv, 75); *PLond.* 971 = *MChr.* 95.5 (4th cent.)

[1] For θάτερον, etc., for τὸ ἅτερον, see Morphology III C.

τἄλλα *BGU* 1050 = *MChr.* 286.28 (30 B.C.-A.D. 14); *PMich.* 121 R I iv.1; vii .3; ix.2; etc., with τὰ ἄλλ' II i.3, etc. (A.D. 42); *BGU* 297.13 (A.D. 50); *BGU* 248.20 (1st cent.: *BL* i, 32); *POxy.* 2973.23 (A.D. 103); *POxy.* 1473.8, with τὰ ἄλλ[α 7 (A.D. 201); etc.

ταὐτοῦ *PBouriant* 14.5 (A.D. 126/7); 15.54 (A.D. 138-61: *BL* iv, 10)

ταὐτόν *PHermRees* 6.10 (4th cent.); 35.11 (7th cent.)

ταὐτό *PRein.* 107.4 (2nd half 6th cent.); *PApoll.* 65.12 (A.D. 710-11)

τἀπό *POxy.* 1638.29 (A.D. 282)

τἀπόλοιπα *POxy.* 2238.12 (A.D. 551)

τἄξ (for τὰ ἐξ) *BGU* 1129 = *MChr.* 254.22 (13 B.C.)

τἀρτοκόπια{ς} *PThead.* 31.35: *BL* iii, 249 (A.D. 319/20)

τοὐναντίον *POxy.* 1203.13 (late 1st cent.); *PSI* 1033.2 (A.D. 166); *PSI Omaggio* 11.17 (3rd cent.); *PCairMasp.* 2 ii.23 (A.D. 567: *BL* i, 100)

τοὔνομα *POxy.* 2133.11 (late 3rd cent.); *PCairIsidor.* 77.7 (A.D. 320); *PAbinn.* 46.5 (A.D. 343); *PCairPreis.* 2.6; 3.6 (same hand) (A.D. 362); cf. *SB* 320.2; 5440.2; inscrr. (n.d.)

τοὐντεῦθεν *PHermRees* 25.11 (5th cent.)

τοὐπεί (for τὸ ἐπί) *SB* 8030 = *PMich.* 245.23 (A.D. 47)

τοὔνπαλιν *PMich.* 476.12 (early 2nd cent.)

τοὔλαττο[ν *POxy.* 471.45 (2nd cent.)

τοὐπιόν *POxy.* 2131.14 (A.D. 207)

τοὐποίη[σας] (for τὸ ἐποίησας) *POxy.* 2273.16 (late 3rd cent.)

τοὐβιλίσκου (for τοῦ ὀβελίσκου) *PLond.* 391 (ii, 329-30).2: *BL* i, 270 (6th cent.?)

τὠπίσω *POxy.* 465.17,62, astrol. (late 2nd cent.)

3. πρό + syllabic augment is sometimes joined in crasis, but the uncontracted forms are more frequent:

προὐτέθη *POxy.* 1185.7 (ca. A.D. 200)

προὔθησεν *SB* 7696.100 (A.D. 250)

προὔταξα *SB* 7622 = *PCairIsidor.* 1.10 (A.D. 297); sim. *PPrinc.* 183.8 (A.D. 345)

προὐτινάμην *SB* 8246.7 (A.D. 335: *BL* v, 102)

προέγραψα *PMich.* 464.4 (A.D. 99)

προέκοψα *SB* 8088.5 (2nd cent.); sim. *PFlor.* 175.26 (A.D. 255)

προενήνοχεν *SB* 4425 iv.2 (2nd cent.)

προετρεψάμην *POxy.* 2986.12 (2nd/3rd cent.)

προελάμβανον *PSI* 1050.8 (A.D. 262); sim. *POxy.* 1151 = *PGMXtn.* 5b.4 (5th cent.?)

προέκριν[α]ν *PCairMasp.* 279.9 (ca. A.D. 570)

προεχίρισα (for -χειρισα) *PApoll.* 60.13 (A.D. 703-15)

προέτεινα *PApoll.* 46.5 (A.D. 703-15)

4. Other forms of crasis in the papyri:

καλοκἀγαθείᾳ{ν} *PHarris* 68.5 B (A.D. 225)
καλοκἀγαθίαν *PAmh.* 145 = *WChr.* 53.6 (ca. A.D. 400)

The above phenomena involving vowels in combination reflect divergent tendencies in the spoken language as opposed to the written language. In the spoken language, words were run together, syllables slurred over, and pronunciation in general sloppy and hurried, as in all familiar speech; this is reflected by more widespread contraction, syncope, the apparent loss of syllables in certain words, and the increase of aphaeresis. Anaptyxis also indicates lazy pronunciation. On the other hand, there is a clear tendency to isolate words and word elements in the written language. This is reflected in the use of uncontracted forms and the failure to mark elision and avoid hiatus.

X. QUANTITY AND ACCENT[1]

A. LOSS OF QUANTITATIVE DISTINCTION

Quantitative distinction was lost in Egypt by the beginning of the Roman period.[2] This is indicated by the frequent interchanges of etymologically long and short vowels and diphthongs from the early Roman to the late Byzantine periods. The symbols for diphthongs interchange with those for long or short vowels without distinction. ει interchanges not only with long ι, but also with short ι. ου interchanges with ο as well as ω. αι interchanges with ε, οι with υ. The other diphthongs merged with their corresponding simple vowels (with or without a following consonantal element) without distinction of quantity. The classical long vowels interchange with short vowels, ω with ο, and η with ε and long or short ι.

B. CHANGE IN NATURE OF THE ACCENT

The loss of quantitative distinction reflects a change in the nature of the Greek accent.[3] The most fundamental change which has taken place in Greek accentuation between ancient and Modern Greek is not the increase in stress

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[1] Schwyzer i, 371-95; Lejeune, § 170, 197-8, 295, 308-21, 354; Buck, *GD*, § 103; *MS*, 68; Schweizer, 94-96, 129-30; Nachmanson, 63-65; Hauser, 48-49; Rüsch, 144-7; Mayser i², 1, 117-19; *BDF*, § 28.

[2] Greek preserved the IE distinction betw. long and short vowels through the class. period, but in MGr. there is no quantitative distinction of vowels exc. in so far as the accented syll. sts. receives a certain lengthening. The loss of quantitative distinction is reflected before the Rom. period in most of the Koine, but not until the 2nd cent. A.D. in Attic. In Egypt, the interchange of long and short vowels and diphthongs begins in the 3rd cent. B.C. and is common in the 2nd. This confusion is different from the earlier occ. interchange of ω and ο and of η and ε (as well as of ε and ει and of ο and ου) in inscrr. from the late 5th and 4th cent. B.C., resulting from the practice of the old orthography of writing O and E for both the long and short vowels. See Schwyzer i, 146-7, 392-5; Lejeune, § 308-21; Buck, *GD*, § 4.6; *MS*, 68; Schweizer, 94-96; Nachmanson, 63-65; Rüsch, 144-7; Mayser i², 1, 117-19; Thumb, *Hell.*, 143, 150; Jannaris, § 86-89 & App. ii.

[3] It is debatable whether the levelling of quantities occasioned the change in the nature of the accent or the converse; in the latter case, Schwyzer, p. 393, does not ascribe the loss of quantitative distinction to the dynamic force of the accent.

nor the modification of pitch, but a transfer of quantity. Classical Greek had a pitch accent,[1] and meter was determined by quantity. Modern Greek word accent, coinciding with the historical pitch marks, is at once musical, quantitative, and intensive.[2] This word accent is dominant and forms the metric ictus.[3] This transfer and subordination of quantity is indicated in the language of the papyri indirectly by the loss of distinction between etymologically long and short vowels and the lack of distinction in phonological development between vowels with acute or circumflex accent, and directly by the confusion of vowels more frequently and unconditionally in unaccented syllables than in accented syllables, as well as by the phenomena of vowel loss in unaccented syllables. The frequency of these phenomena in the papyri as compared with the rest of the Koine indicates a greater force and prominence of stress in the accent of Egyptian Greek. A stronger stress accent in Egypt is the result of bilingual interference. In Coptic, the stress accent was so strong that few vowel quantities were distinguished in unaccented syllables.[4]

The position of the Greek word accent, when the nature of the accent changed and quantity was subordinated to it, remained in general the same as in the Attic dialect, apart from the instances of later secondary conditioned changes involving the development of the paroxytones to oxytones and some other

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[1] Direct sources of knowledge of the historical Gr. accent are the testimonies of ancient writers, incl. Pl., various grammarians dating from Aristophanes of Byzantium (3rd cent. A.D.), and scholiasts, and the accentuation in practice of lit. texts in the papp. and mss. Indirect sources are historical and comparative phonology, prosody, and the notation of musical texts, esp. those from 2nd cent. Delphi. These sources indicate that each syll. had a rising intonation regardless of quantity or origin, and that the main word accent had an intonation rising to about a musical fifth above the ordinary level of the other syll. See Schwyzer i, 180, Zus.; 371-6, 391-5; Lejeune, §170, 295, 308-21, 354; Buck, *CG*, 161-3; Jannaris, §76-85 & App. 1 (to be used with caution); Campbell, "The IE Accent"; Lehmann, W.P., *Proto-Indo-European Phonology* (Austin, 1952), 8-9, 109-12.

[2] Mirambel, *Langue grecque*, 27-28; *Gram.*, 18. The MGr. accent consists generally of a musical elevation ranging from a third to a fifth, immediately achieved, not ascendant, accompanied by a degree of lengthening and of intensity which is not considerable.

[3] Neglect of vowel quantity in poetry is attested in Rom. times in Att. inscrr. (*MS*, 68) and a stress accent is indicated elsewh. in later Gr. (Schweizer, 129-30). The earliest signs of accentual versification are found in Antipator of Sidon (150-120 B.C.) and Philip of Thessalonica (ca. 50 B.C.) and esp. in Babr. (2nd cent. A.D.), who made an accented vowel coincide with the final ictus in each line, and contemporary poets who made a practice of avoiding an accented syll. at the end of a pentameter. Nonnus first took word accent fully into account in hexameters (ca. A.D. 400). Accentual versification is well established by the time of Gregory Nazianzen (late 4th cent.) and is reflected in his formal prose. See Schwyzer i, 394; P. Maas, *Greek Metre* (Oxford, 1946), §19-25; A. Dihle, *Hermes* 82 (1954), 182-99.

[4] See the Copt vowel quadrilaterals below, pp. 332-3, and cf. Steindorff, 37-40; Vergote, *Gram.* Ia., §60-64, 69-71. C. M. Knight, *JP* 35 (1919), 51-71, assigns the change of accent in Egypt to Copt. speakers retaining their own accent (pp. 62-63) and holds that the change in accent throughout the Greek world was universalized bec. of the Macedonian stress accent (pp. 65-69). The change locally could certainly have been the result of bilingual interference, as Schwyzer, 393, suggests for the loss of quantitative distinction. Compare similar hypotheses concerning the causes of the great Germanic *Lautverschiebung*.

accentual shifts. Evidence for these changes of the position of the accent come mainly from Modern Greek. Accents were rarely marked in documentary papyri.[1]

Note on syllabication.[2]

Syllabication is notoriously irregular in the papyri of all periods. It is mainly an orthographic phenomenon, with little significance for phonology. The following types of anomalous syllabication occur.

1. The final consonant of one word is sometimes carried over to begin a new line of writing before another word beginning with a vowel:

κα|θ' ἔν *POxy.* 282 = *MChr.* 117.13-14 (A.D. 30-35)
πα|ρ' αὐτῶν *POxy.* 1282.30-31 (A.D. 83)
ἀ|π' Ὀξυρύγχων πόλε[ω]ς *POxy.* 2960.8-9, sim. 22-23 (A.D. 100); *POxy.* 1555.12-13 (A.D. 260/1)
οὐ|κ ἰσχύω *PMilVogl.* 24.45-46 (A.D. 117)
οὐ|κ ἔστιν *PSI* 1054.5-6 (3rd cent.)
οὐ|κ ἔπεμψα *PLond.* 190 (ii, 253-5).9-10 (2nd cent.: *BL* iii, 92)
οὐ|κ ἦλθας *SB* 7248 = *PMich.* 216.8-9 (A.D. 296)
ἐ|π' αὐτῶν *POxy.* 2182.22-23 (A.D. 166)
ἐ|π' ἀμφόδου *PFay.* 30 = *WChr.* 214.5-6 (A.D. 173)
τῆ|ς αὐ(τῆς) *POxy.* 79.3-4 (A.D. 181-92)
τὴ|ν ἄμπελον *BGU* 33.3-4 (2nd/3rd cent.: *BL* i, 10)
κα|τ' ἄνδρα *PSI* 733.42-43 (A.D. 235)
κα|τ' αὐτόν *PTebt.* 319.33-34 (A.D. 248)
ὑπαὶ|ρ ἀτῶν (for ὑπὲρ αὐτῶν) *BGU* 13 = *MChr.* 265.21-22 (A.D. 289)
ἀπανελτῖ|ν (for -ελθεῖν) ἕως *PGen.* 56 = *PAbinn.* 37.18-19, with πλ|ευράν 26-27 (ca. A.D. 346)
ἑτοίμω|ς ἔχω *PAntin.* 42.16-17 (A.D. 542)

2. The final consonant of one word is also sometimes carried over to begin the new line before a word beginning with a consonant or *in pausa*:

ἐπανώρθωσι|ν πρός *PMich.* 354.13-14 (A.D. 52)
ὡ|ς πρόκιται *PPhil.* 13.23-24, sim. 21-22, etc. (A.D. 155)
σχεδὸ|ν καί *PFouad* 26.46-47 (A.D. 157-9)
ἐ|κ τούτου *POxy.* 1405.10-11 (A.D. 236/7: *BL* iv, 61)
ἐ|κ τοῦ *CPR* 176.12-13 (A.D. 255: *BL* i, 120)
πρὸ|ς δύο *BGU* 775.7-8 (3rd cent.: *BL* i, 65)
προεῖπο|ν *in pausa* *SB* 7252 = *PMich.* 220.17-18 (A.D. 296)

[1] Cf. *PRyl.* 624 (1st half 4th cent.), with ἀ]ξιούμεν and ἀμοιβῆς 3, κήδεσθαι 16, ἀγαθοῦ 17, etc.; *PCairMasp.* 151 (A.D. 570), with ζῶ 29, μιᾶ 115, ἀξιῶ 195, οἷς 212, οἰς 225, θαρρῶ 248.

[2] Schwyzer i, 235-6; Lejeune, § 295-9; *MS*, 7-8; Schweizer, 131-3; Nachmanson, 115-18; Hauser, 74-76; Rüsch, 285-312; Mayser i², 1, 220-224; Crönert, 10-18.

3. Sometimes the syllable division occurs after the consonant:

ἔλ|εγεν *POxy.* 2979.3-4 (3 B.C.)
κ|ατάντησον *PMich.* 577.11-12 (A.D. 41-69)
μ|ερῶν *SB* 7031 = *PMich.* 186.32-33, with μέρου|ς 34-35 (A.D. 72)
περ|ί *PHamb.* 5.13-14 (A.D. 89)
μαθ|ήματα, ἀδ|ελφοῦ *POslo* 153.6-7,7-8 (early 2nd cent.)
ἔχ|ω, μ|ηνός *BGU* 68.4-5,9-10 (A.D. 113/14)
ἀπέχ|ω *POxy.* 2967.22-23 (A.D. 154)
μ|ετά *PMich.* 563.23-24 (A.D. 128/9)
μ|εθ' *CPR* 198.8-7 *sic* (A.D. 139)

4. Sometimes the syllable division occurs after two or more consonants:

συνπλ|ήρωσιν *PFay.* 44.10-11 (16 B.C.?)
μν|ησθῆναι *POxy.* 2979.4-5 (3 B.C.)
μισθ|ώσασθαι *PHamb.* 5.7-8 (A.D. 89)
συνχ|ωρῆσε *BGU* 50 = *MChr.* 205.9-10 (A.D. 115)
Δημητρ|οῦς *BGU* 70 = *MChr.* 175.6-7 (A.D. 131)
φρ|οντίδι *PStrassb.* 515.7-8 (2nd cent.)
ἔγρ|αψα *PPhil.* 13.24-25 (A.D. 155); *BGU* 520.15-16 (A.D. 172)
πρ|ός *PMich.* 211.6-7 (2nd/3rd cent.)

5. Sometimes the syllable division occurs before two consonants:

γρά|μματα *PMich.* 253.12-13 (A.D. 30); 169.9-10 (A.D. 145); *BGU* 615.20 part. rest. (2nd cent.)
παρατυχό|ντα *PMich.* 229.24-25 (A.D. 48)
τέ|χνην *POxy.* 2971.11-12 (A.D. 66); 2977.40-41, 44-45 (A.D. 239)
δρα|χμάς *PSI* 814.8-9 (1st/2nd cent.); *BGU* 114 = *MChr.* 372 ii.15-16 (2nd cent.); sim. *PPrinc.* 57.13-14 (2nd cent.); *CPR* 5 = *StudPal.* xx, 10.2-3 (A.D. 168); *PGrenf.* i, 51.15-16 (2nd/3rd cent.); *PLBat.* xiii, 5.11-12 (3rd cent.); etc.
τε|κτονικῶν *PFlor.* 16.24-25 (A.D. 239)
ποτι|σμούς *POxy.* 2969.9-10 (A.D. 323)
ἐ|γγεγραμμένων *PRyl.* 657.5-6 (A.D. 323-4)

6. Sometimes two consonants are split within a syllable:

γ|νῶναι *PFay.* 123.5-6 (after A.D. 110: *BL* iv, 29)
π|ρότερον *PMich.* 493.11-12 (2nd cent.)
χ|ρεία *POxy.* 2727.10-11 (3rd/4th cent.)

7. Sometimes the syllabication occurs within a diphthong:

ἔτο|υς *PMed.* 4.11-12, sim. 6-7 (A.D. 2)
μέρο|υς *PSI* 913.5-6 (1st cent.)

τετελε|ύτηκεν *PMich.* 305.21-22 (1st cent.)
ἀπολαμβανο|ύσης *PMilVogl.* 226.27-28 (A.D. 135)
πυρο|ῦ *PTebt.* 370.12-13 (2nd/early 3rd cent.)
σίτο|υ *OMich.* 172.1-2 (4th cent.)
δο|ῦλον *POxy.* 1058 = *PGMXtn.* 6b.3-4 (4th/5th cent.)

SUMMARY OF VOWELS

The above evidence indicates the following basic phonemic structure of vowels in the language of the papyri of the Roman and Byzantine periods, with their ordinary representations in writing, alternative representations through bilingual interference, and allophones in specific conditions.

Phoneme	*Ordinary Representation*	*Alternative Representation*	*Allophones and Conditions*
/i/	ι ει	η ηι ε αι	[i] replaced by /ε/ before ρ (pp. 249-62)
[/e/]	η ηι	ι ει ε αι υ οι	[e] ? (pp. 242-9)] replaced generally by /i/ (pp. 235-42) replaced by /ε/ before ρ, etc. (pp. 242-9, 261-2)]
/eu/	ηυ	ηου	[ew > eβ] (pp. 188-9)
/ε/	ε αι	η ει ι	[ε] replaced by /i/ before a back vowel, nasal, σ/ς (pp. 249-62) replaced by /a/ esp. before ρ (pp. 278-86)
/εu/	ευ	ε ε(υ)ου εβ	[εw > εβ] (pp. 226-33)
/a/	α αι αυ	ο ε	[ə] in unaccented syll. esp. before -ς/ν (pp. 289-92) [a] elsewh.
/au/	αυ	α α(υ)ου αβ	[aw > aβ] (pp. 226-33)
/o/	ο ω ωι	ου α ε	[ə] in unaccented syll. esp. before -ς (pp. 289-92) [o] elsewh.
/u/	ου	ο ω	[u]
/y/	υ υι οι	η	[y]

The above phonemic structure of vowels in the papyri may be represented on vowel quadrilaterals and compared with those of classical Attic Greek, Modern Greek, and Coptic, which appear below. Those for classical Attic are derived from Schwyzer, Lejeune, Sturtevant, and Lupaş; those for Modern Greek from Lejeune, Mirambel, *Langue grecque* and *Gram.*; those for Coptic from Vergote, *Gram.* In the quadrilaterals for classical Attic diphthongs, the arrows represent the direction of the vowel glide. In Modern Greek, diphthongs are formed whenever two vowels come together of which the first is accented and the second a more closed vowel than the first; there are theoretically twenty such diphthongs. In the Coptic quadrilaterals, the arrows indicate "allophone of." For clarity, positional variants of one phoneme which coincide with another phoneme have not been represented, nor are orthographic variants indicated.

Language of the Roman and Byzantine Papyri

Accented primary vowels

ι-ει-η(ι)
ου
η(ι)?
ε-αι
•-ω(ι)
α-ᾱ(ι)

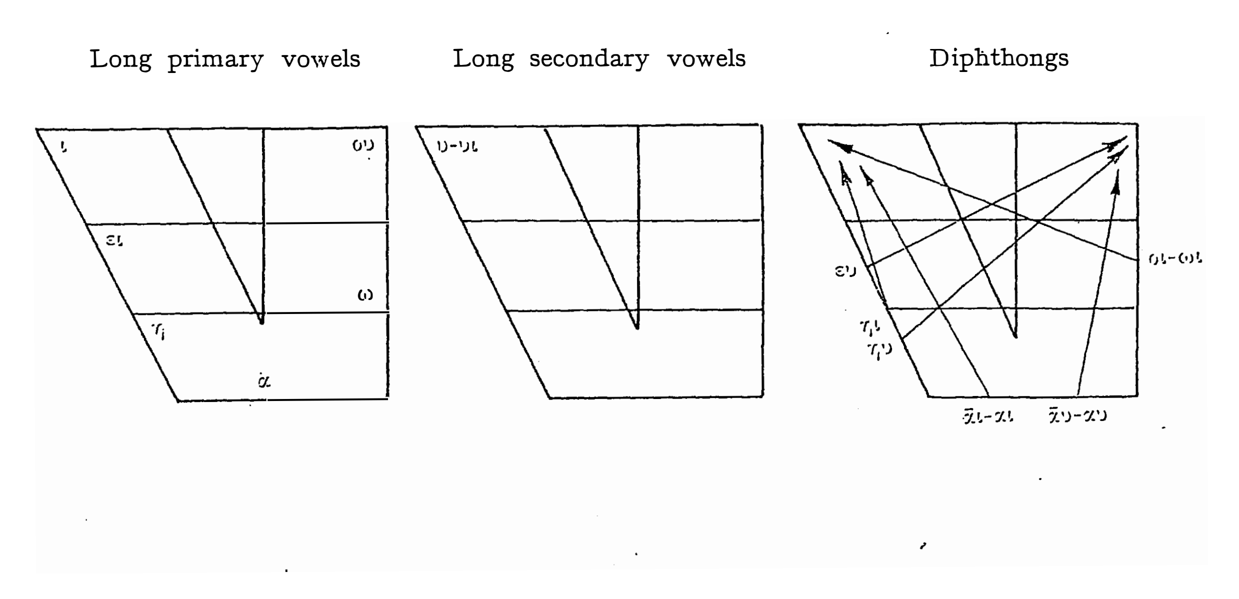
Accented secondary vowels

υ-υι-οι

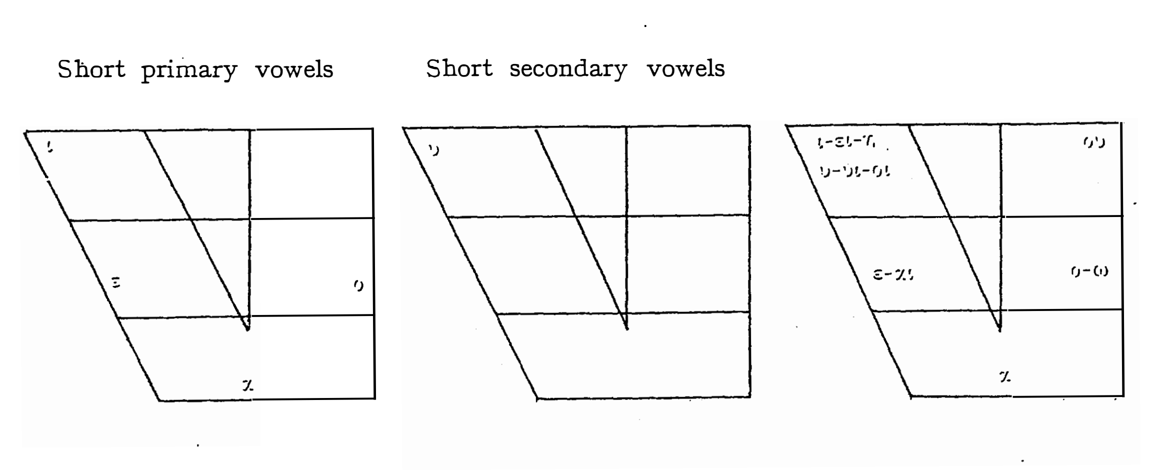
Unaccented primary vowels

ι-ει-η(ι)
ου
ε ο α
ε-αι
ο-ω(ι)
α-ᾱ(ι)

Classical Attic Greek



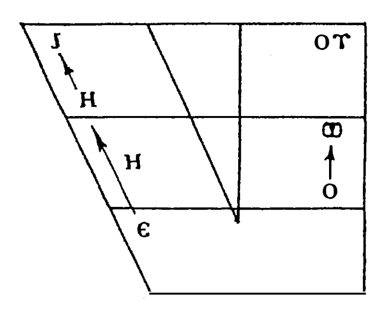
Classical Attic Greek *Modern Greek*

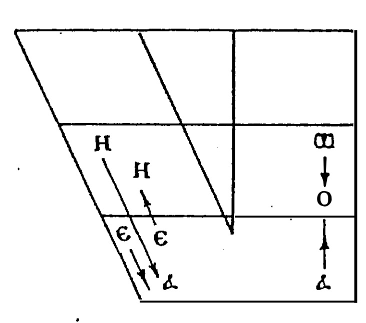


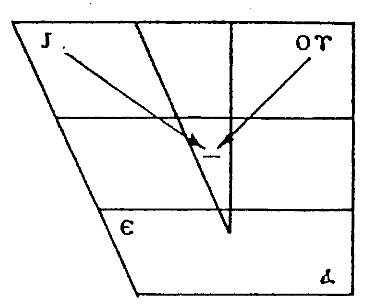
Coptic

Long stressed vowels | Short stressed vowels | Unstressed vowels

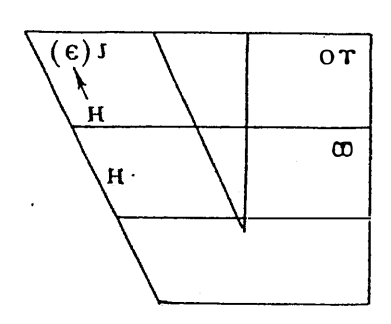
Bohairic

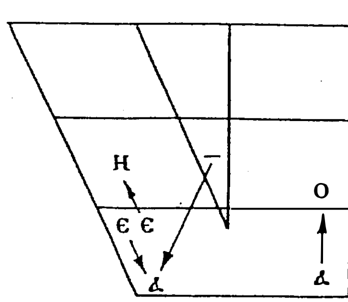


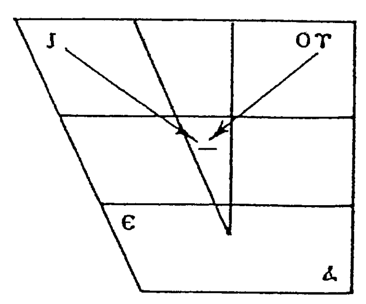




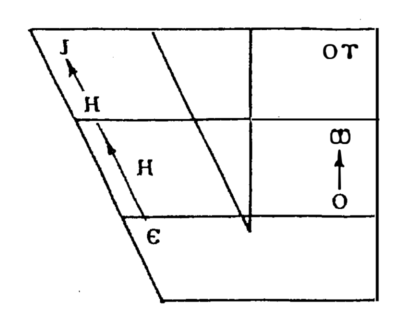
Sahidic

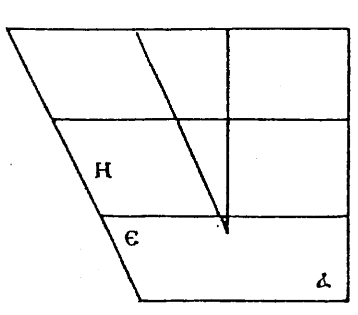


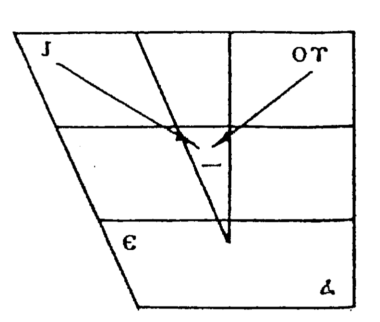




Fayumic

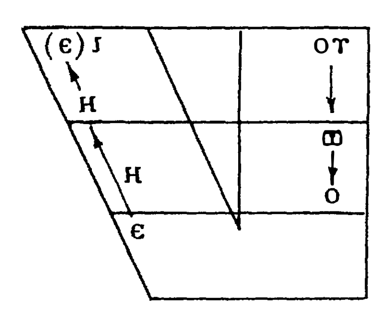


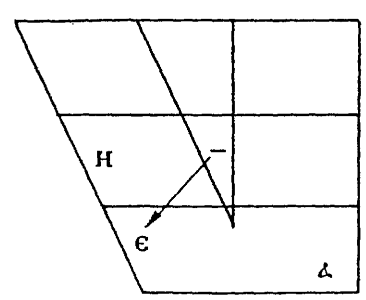


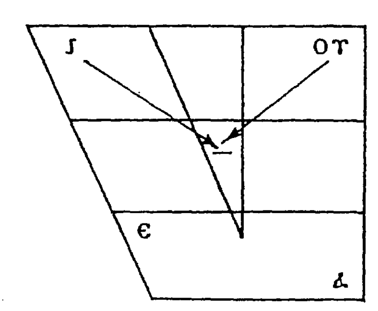


Long stressed vowels | Short stressed vowels | Unstressed vowels

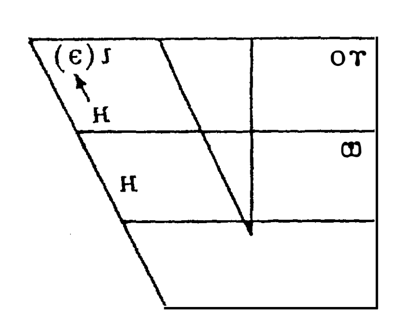
Oxyrhynchite

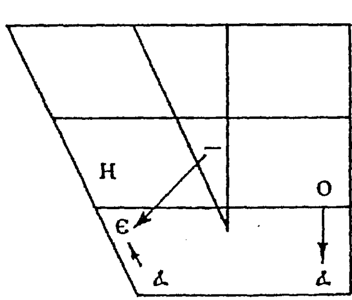


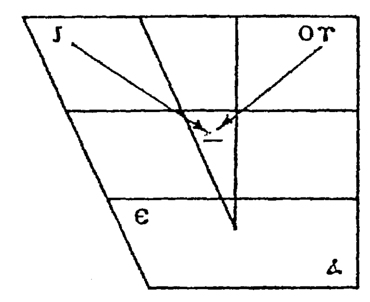




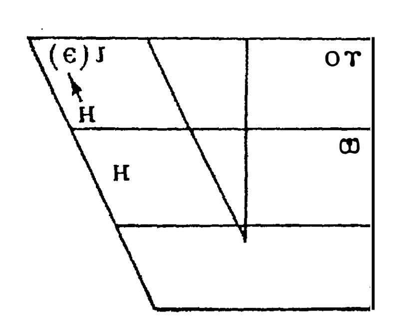
Sub-Achmimic

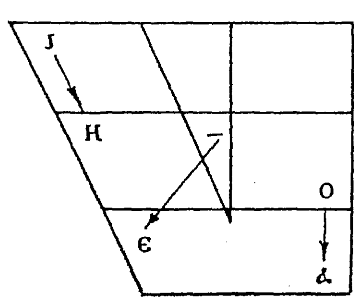


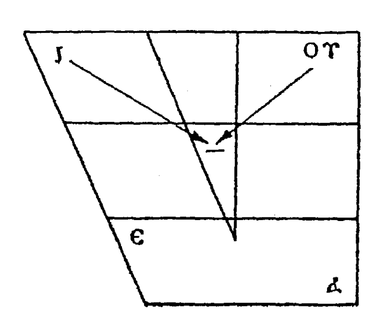




Achmimic







INDEX OF GREEK WORDS AND FORMS

Words are listed according to their dictionary form, followed by the spelling in which they appear in the grammar. Compound verbs are listed only under the simple verb if it is in use, unless the preverb itself is affected by orthographic variation.